BE3240
CONVEYOR OVEN
INSTALLATION – OPERATION – MAINTENANCE

BLODGETT / A MIDDLEBY COMPANY

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PN 58115 (5/05)

G.S. Blodgett Corporation

IMPORTANT

WARNING: IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTENANCE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH. READ THE INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR SERVICING THIS EQUIPMENT

FOR YOUR SAFETY
Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

The information contained in this manual is important for the proper installation, use, and maintenance of this oven. Adherence to these procedures and instructions will result in satisfactory baking results and long, trouble free service. Please read thismanual carefully and retain it for future reference.

Errors: Descriptive, typographic or pictorial errors are subject to correction. Specifications are subject to change without notice.

BLODGETT®

THE REPUTATION YOU CAN COUNT ON

For over a century and a half, The Blodgett Oven Company has been building ovens and nothing but ovens. We've set the industry's quality standard for all kinds of ovens for every foodservice operation regardless of size, application or budget. In fact, no one offers more models, sizes, and oven applications than Blodgett; gas and electric, full-size, half-size, countertop and deck, convection, Cook'n Hold, Combi-Ovens and the industry's highest quality Pizza Oven line. For more information on the full line of Blodgett ovens contact your Blodgett representative.

Your Service Agency's Address:

Model:

Serial Number:

Your oven was installed by:

Your oven's installation was checked by:

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NOTE

Wiring Diagrams are in Section 7 of this Manual. The diagram for each oven is also on the lower inner surface of its Control Console.

NOTES

SECTION 1
DESCRIPTION

I. MODEL IDENTIFICATION

The Blodgett BE3240-Series may be used either as a single oven or stacked for use as double or triple ovens. The major difference between the oven models in this series is the width of the conveyor.

A single BE3240-Series Oven (Figure 1-1) is mounted on a base pad with legs and casters. A double oven (Figure 1-2) consists of two, *stacked,* single ovens. A triple oven (Figure 1-3) consists of three stacked single ovens. The lower oven is mounted on a base pad with short legs and casters.

On a double or triple oven, the ovens operate completely independent. All ovens use identical controls and components. One oven can be cleaned or serviced, while the others are operating.

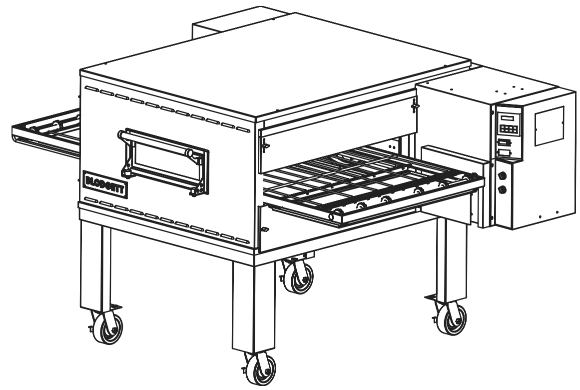


Figure 1-1. Single BE3240 Oven

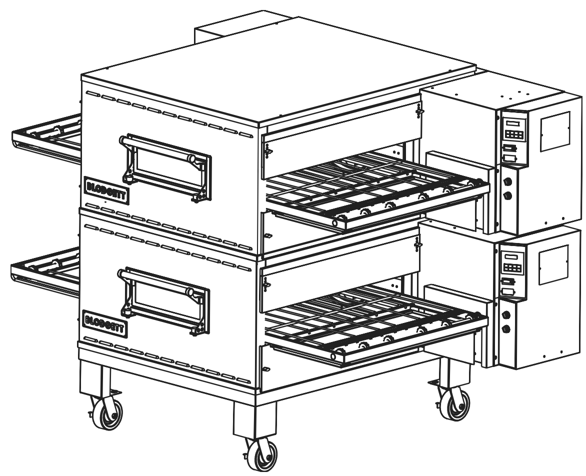


Figure 1-2. Double BE3240 Oven



Figure 1-3. Triple BE3240 Oven

BE3240 SERIES OVEN SPECIFICATIONS

Conveyor Belt Width	32″ (813mm)
Heating Zone Length	40-1/2″ (1028mm)
Baking Area Square Feet	9 sq. ft. (0.84 sq. m.)
Overall Dimension Standard Single Oven w/Legs	80″ (2032mm) L × 61-5/16″ (1557mm) W × 47-5/16″ (1202mm) H ×
Overall Dimension Double Oven	80″ (2032mm) L × 61-5/16″ (1557mm) W × 60-15/16″ (1548mm) H x
Overall Dimension Triple Oven	80″ (2032mm) L x 61-5/16″ (1557mm) W × 77-1/2″ (1969mm) H ×
Weight of Single Oven	925 lb (419kg)
Shipping Weight	1,100 lb (498.3kg)
Shipping Cube	Approx. 132 ft^3 (3.74 m^3)
Operating Range	27 kW/hr
Maximum Operating Temperature	550°F (287°C)
Warm-up Time	15 min.
Recirculating Air Fan	One fan at 2050 RPM
Air Velocity	3000 fpm (1524 cm/sec) (Average)
Bake Time	3 min. 0 sec. Bake Time minimum 30 min. 0 sec. Bake Time maximum

SERIES BE3240 ELECTRICAL SPECIFICATIONS

Main Blower & Elements Voltage	Control Circuit Voltage	Phase	Frequency	Amperage Draw	Poles	Wires
208-240V	208-240V	3 Ph	50/60 Hz	100 Amp	4 Pole	4 Wire (3 hot, 1 grd)

HEATER AMPERAGE

Voltage	kW	Amp	Average Amps		
208	27	75	37	37	37
240	27	65	33	33	33

Main Blower & Elements Voltage	Control Circuit Voltage	Phase	Frequency	Amperage Draw	Poles	Wires
380-400V Export	208-240V	3 Ph	50/60 Hz	50 Amp	4 Pole	5 Wire (3 hot, 1neut, 1 grd)

HEATER AMPERAGE

Voltage	kW	Amp	Average Amps		
380-400	27-29.9	40-44	22	22	22

Main Blower & Elements Voltage	Control Circuit Voltage	Phase	Frequency	Amperage Draw	Poles	Wires
480V	208-240V	3 Ph	50/60 Hz	50 Amp	4 Pole	5 Wire (3 hot, 1neut, 1 grd)

HEATER AMPERAGE

Voltage	kW	Amp	Average Amps		
480	27	32.5	28	28	28

NOTE

Wiring Diagrams are contained in Section 7 of this Manual and are also located inside the oven at the bottom of the Control Panel

This Manual Must Be Kept For Future Reference

II. PRINCIPLE OF AIR FLOW

The fan-style blower draws air into the oven plenum where it is heated. The blower then pushes the hot air through the air fingers into the baking chamber. Each air finger contains an inner plate and outer plate that form the hot air into jets, distributing it across a conveyor belt on which the food product rides. Air is then pulled back into the blower and the process continues. The curving, black arrows of Figure 1-4 show this air flow.

A. Heat Transfer and How It Works

1. Heat constantly moves from a warm object to a cold object. Heat moves using three different paths: Conduction; Radiation; and Convection.

Conduction: This path utilizes surface-to-surface contact. The pizza dough in contact with the pan is a good example of conduction.

Radiation: This path has to do with objects radiating heat. Dark objects absorb heat whereas light or shiny objects reflect more heat. This is the reason that the inside of a BE3240-Series Oven is light in color: To reflect more heat back onto the food product.

Convection: This path has to do with moving a volume of air. It explains why hot air rises and cooler air replaces hot air. An industrial application of this principle is to incorporate a fan to force the hot air movement, which in turn increases the heat transfer to the food product.

Each BE3240-Series Oven has a large fan-style blower to move the hot air through the air fingers and onto the product to cook/bake the food product most efficiently.

2. Temperature is the intensity of heat at the point where it is sensed. As discussed above, heat flows by conduction, radiation and convection. The speed at which the heat flows is determined by the temperature difference between the oven and the food product. The larger the difference, the faster the heat flows to the item that is being baked.

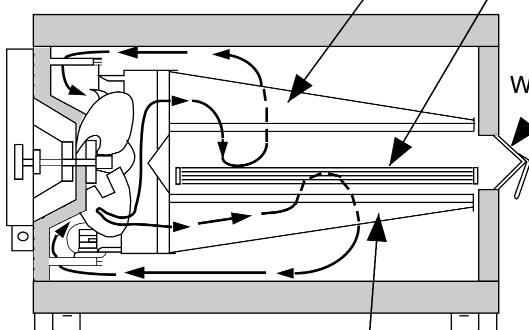


Figure 1-4. BE3240-Series Oven Air Flow

II. PRINCIPLE OF AIR FLOW (Continued)

B. Air Fingers

The BE3240-Series Ovens are conveyorized ovens that employ vertical jets of hot air streaming from air fingers (Figure 1-5) to give uniform, intense heating. The vertical streams of hot air provide an exceptional heat transfer rate and generally bake faster and at lower temperatures than convection hot air or infrared heating ovens.

A BE3240-Series Oven can accommodate up to four bottom air fingers and four top air fingers. Some BE3240-Series ovens used to bake pizza have four bottom fingers and two top fingers. For special product baking requirements, a number of other styles of fingers and finger arrangements are available from the factory.

NOTE: *Some customers have a predetermined finger arrangement. If you have any questions pertaining to the finger arrangement, please call the factory.*

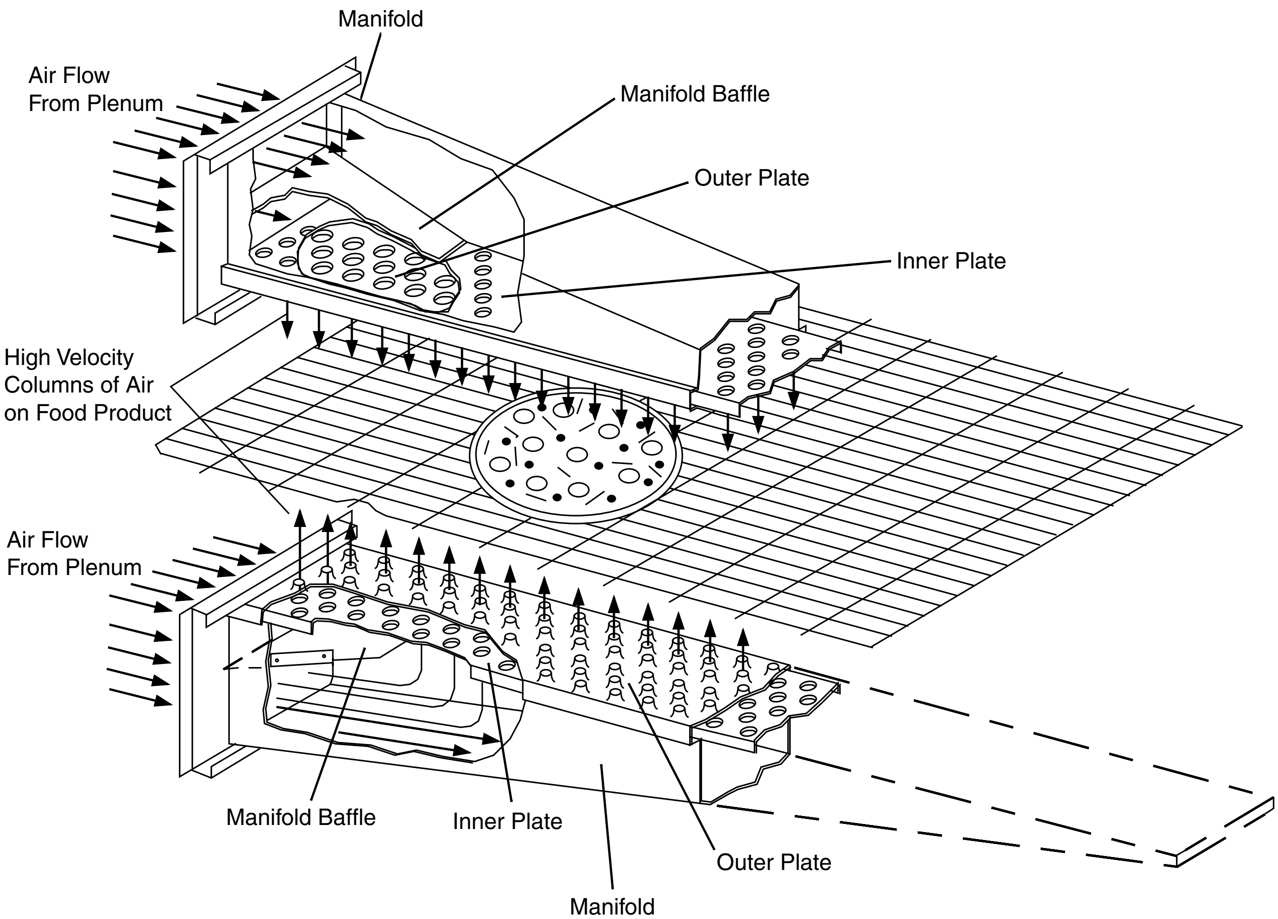


Figure 1-5. Air Fingers, Showing High-Velocity Columns of Air Formed During Passage Through the Inner Plate and Outer Plate to Heat the Food Product.

III. COMPONENT FUNCTION (Figure 1-6)

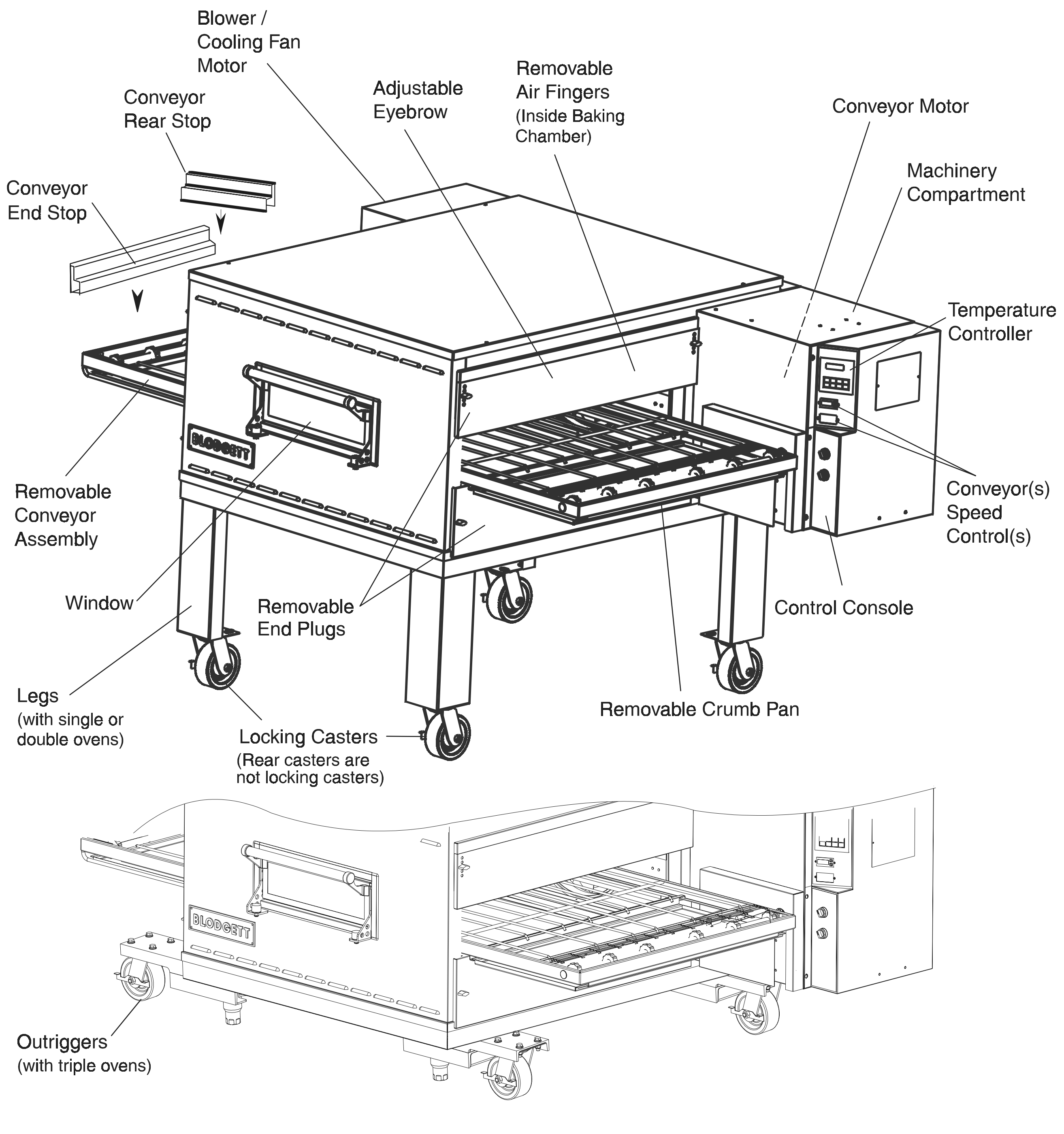


Figure 1-6. BE3240-Series Oven Components Locations

III. COMPONENT FUNCTION

A. Conveyor Motor and Conveyor Belt

The conveyor belt is driven by a variable-speed electric motor (Figure 1-7) operating through a gear reducer. The motor speed is controlled by a digital control. The stainless-steel wire belt can travel in either direction at variable rates ranging from 3 minutes to 30 minutes; this is the time that a product can take to pass through the oven.

B. Blower Fan

The blower fan is located at the rear of the oven. This blower forces heated air through the air fingers. The BLOWER/HEAT switch must be set to "ON" or "I" for oven warmup and baking.

C. Electric Burner

There are six heater elements mounted on the inside of the rear panel. Each element is connected to an electrical control which is energized by the temperature controller.

D. Window

A window on the front of the oven permits viewing the items being baked and provides access to the oven for items that do not require full baking time, such as sandwiches, cookies, small items, or cheese-melting processes.

E. Cooling Fan — See Figure 1-8

The cooling fans are located in the back of the oven. These cooling fans draw air through its grille, blowing it through the blower motor compartment and the control compartment into the oven top and exhausted out the front louvers.

F. Air Fingers and Blank Plates - See Figure 1-9

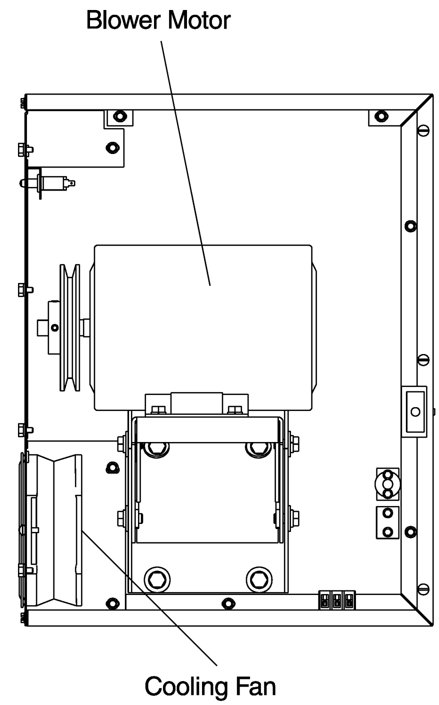
F1. Air Fingers

An Air Finger Assembly is made up of three parts:

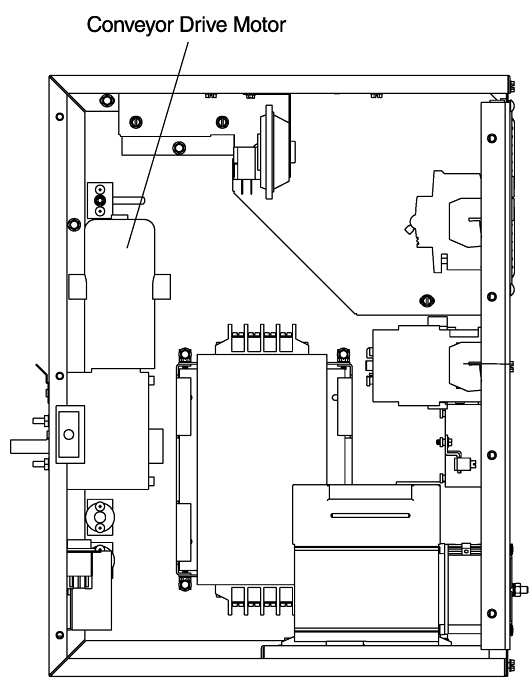
1. **Outer Plate -** The Outer Plate is the removable covering with tapered holes, which direct the air stream onto the product being baked.

2. **Inner Plate** -The perforated Inner Plate is vital in forming the unique air jets. It must be assembled into the manifold with its holes aligned with the holes of the outer plate.

3. **Manifold -** The Manifold is the assembly which slides on tracks into the oven plenum.



Left Control Box



Right Control Box

Figure 1-7. Machinery Compartment Components

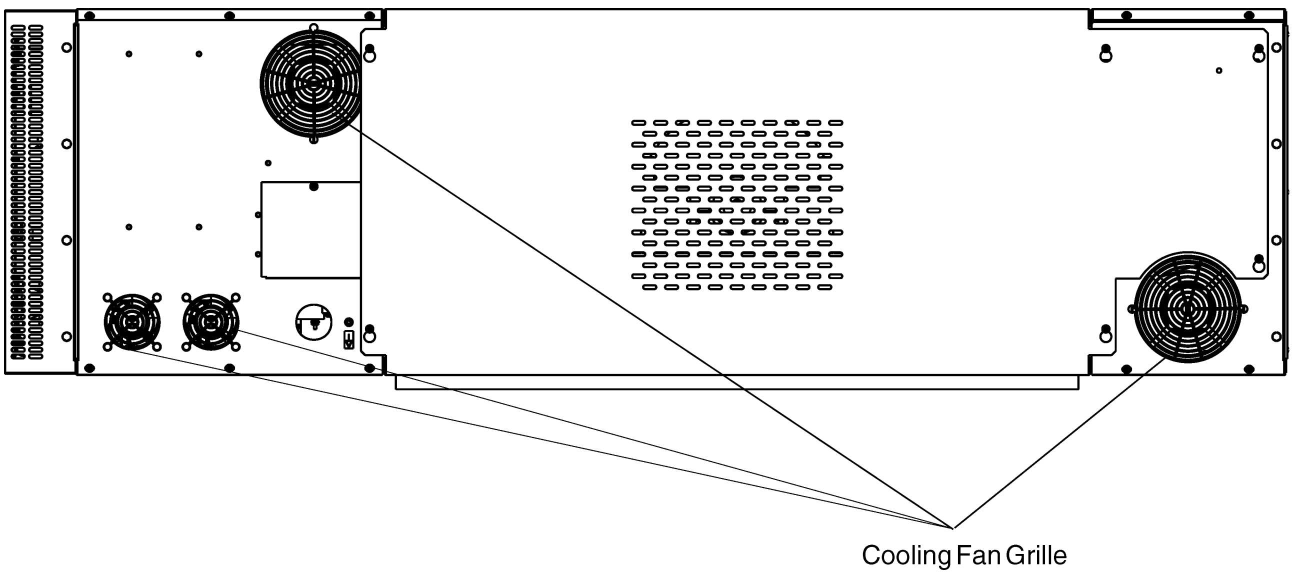


Figure 1-8. Cooling Fan

F2. Blank Plates

1. **Blank Plates-** The Blank Plates are available to install on the plenum where an air finger is not required.

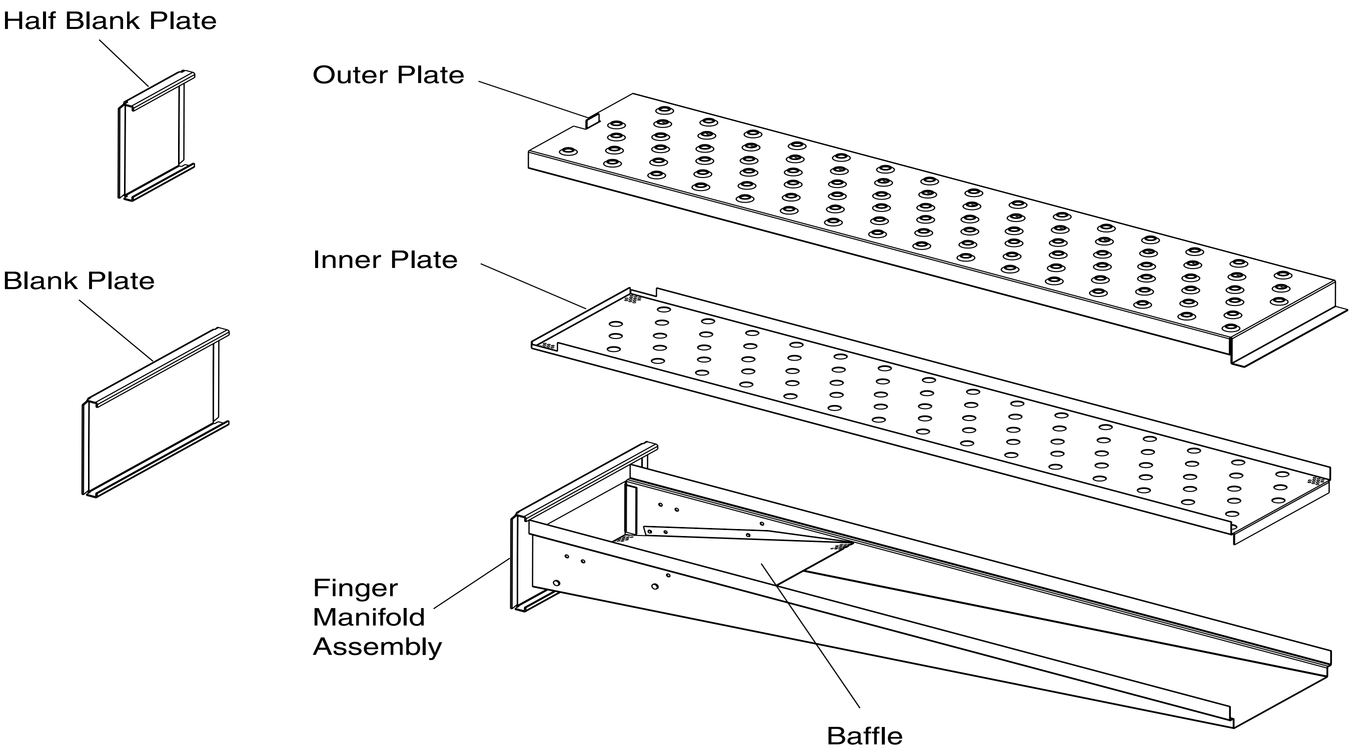


Figure 1-9. Blank Plates (two sizes) and an Air Finger.

SECTION 2
INSTALLATION

NOTE: *The oven, when installed, must be electrically grounded in accordance with local codes, or in the absence of local codes, with the National Electrical Code (NEC), or ANSI/NFPA70.*

NOTE

There must be adequate clearance between the oven and any adjacent combustible construction. Clearance must also be provided for servicing and for operation.

CAUTION

It is required that the oven be placed under a ventilation hood for adequate air supply and ventilation.

CAUTION

Do not obstruct the flow of combustion and ventilation air to and from your oven. Do not obstruct the ventilation holes in the Control Panel.

CAUTION

On ovens with the Machinery Drive Compartment located at the right end, a minimum clearance of 0″ to a left side wall, 18″ to a right side wall and 6″ from a back wall to air openings at the rear of the oven must be maintained. On ovens with the machinery/drive compartment located at the left end, a minimum clearance of 0″ to a right side wall, 18″ to a left side wall and 6″ from a back wall to air openings at the rear of the oven must be maintained.

For servicing and cleaning, a minimum of 18″ clearance from all walls is recommended.

I. UNLOADING

Your Blodgett BE3240-Series Oven is shipped partially assembled. It will arrive in a carton on a crate.

Carton size for a BE3240-Series Oven is:

84″ (2134mm) Long ×

58″ (1473mm) Wide ×

44″ (1118mm) High ×

The crate and carton must be examined before signing the Bill of Lading. Report any visible damage to the transport company, and check for the proper number of crates. If apparent damage is found, make arrangements to file a claim against the carrier. Surface Interstate Commerce Regulations (U.S.A.) require that the claim must be initiated by the consignee within 10 days from the date that the shipment is received.

A Pre-installation Procedures Manual is attached to the exterior wall of the carton. This manual contains detailed instructions on unpacking and moving the oven(s) to the operating site. When the transport company notifies you of an impending delivery, arrange to have a forklift at your facility to unload the carton(s).

Instructions for stacking the ovens is continued in a separate manual used by Blodgett Authorized Installers.

If you have a door wider than the carton, simply move the carton into your facility and arrange an appointment with your Blodgett Authorized Installer.

If your door is narrower than the carton, then the oven will have to be unpacked. Follow the directions shown in the Pre-Installation Procedures Manual.

BE3240 OVEN INSTALLATION REQUIRED KITS AND EQUIPMENT

TYPE OF INSTALLATION	BE3240 Gas Oven Installation Kit P/N 50663	BE3240 Single Oven Option Base w/15″ Legs, Casters & Top Kit P/N 34832	BE3240 Double Oven Option Base w/6″ Legs, Casters & Top Kit P/N 34833	BE3240 Double Oven Option Base w/Casters & Top Kit P/N 34831	BE3240 Triple Oven Option Base w/Casters & Top Kit P/N 51139
BE3240 Single Gas Oven	1	1			
BE3240 Double Gas Oven	2		1	1	
BE3240 Triple Gas Oven	3				1

PARTS LIST FOR SERIES BE3240 GAS OVEN INSTALLATION KIT P/N 50633 (Two required for double oven) (Three required for triple oven)

ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	33900-0032	FLEXIBLE GAS HOSE
2	1	35000-1103	CONVEYOR END STOP
3	1	35900-0148	CONVEYOR LEFT REAR STOP
4	1	50664	SERIES BE3240 OWNER/OPERATOR MANUAL
5	1	1002040	SERVICE AGENCY DIRECTORY

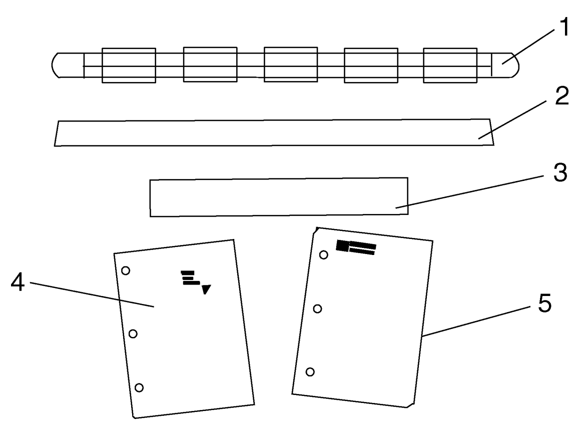


Figure 2-1. BE3240-Series Gas Oven Installation Parts

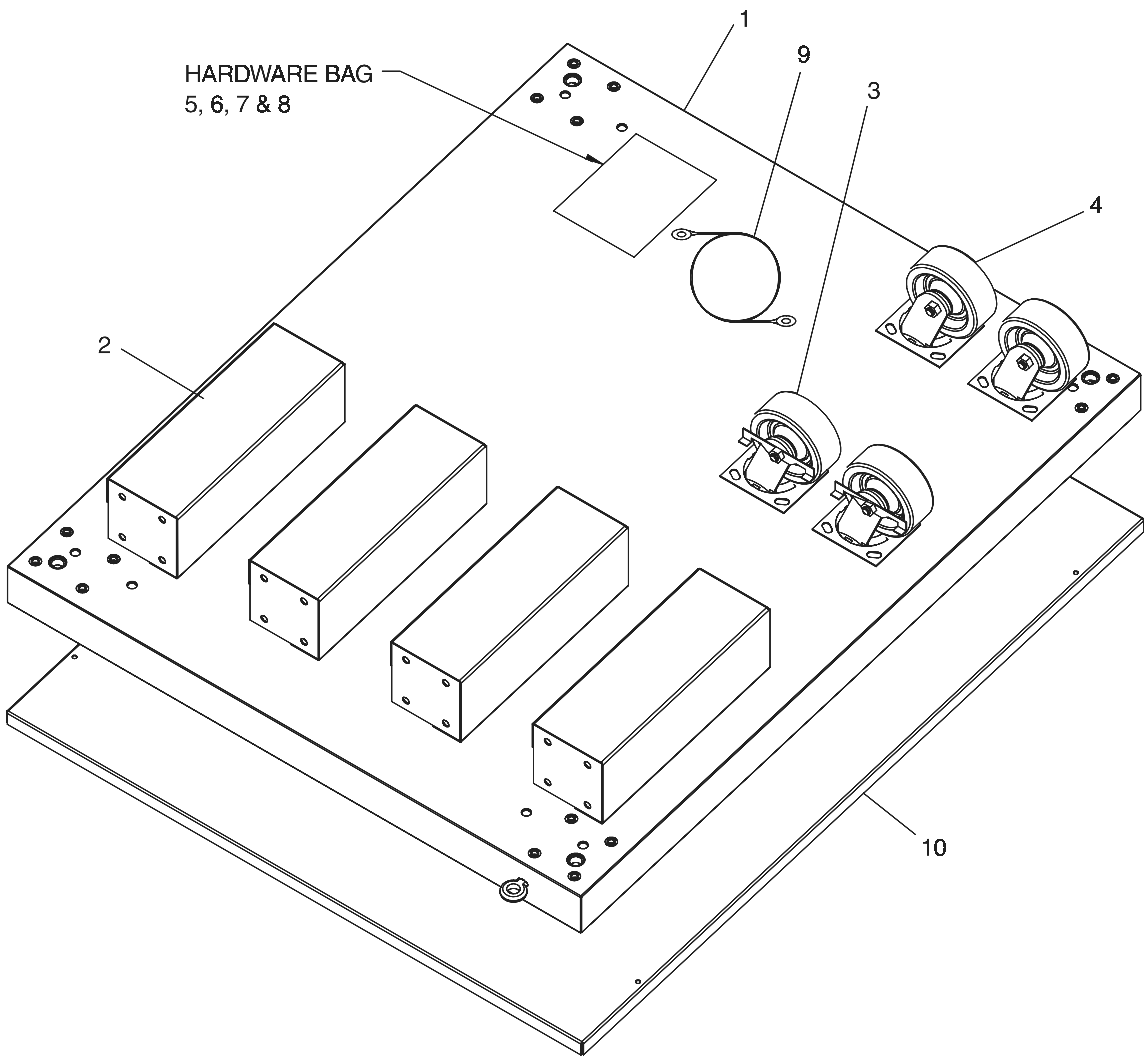


Figure 2-2. Model BE3240 Single Oven Option Base with Legs and Top

PARTS LIST FOR BE3240 SERIES SINGLE OVEN OPTION - BASE w/15² LEGS & TOP
P/N 34832

ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	37900-0025	COMPLETE BASE WELDMENT
2	4	37900-0024	TOP PLATE, LEG WELDMENT
3	2	22290-0009	SWIVEL CASTER W/BRAKE FLAT PLATE
4	2	22290-0010	SWIVEL CASTER FLAT PLATE
5	32	220373	3/8″-16 × 1″ HEX SCREW,SST
6	32	21416-0001	3/8″ FLAT WASHER, SS
7	32	21422-0001	3/8″ SPLIT LOCK WASHER, ZP
8	4	21256-0008	SCREWS FOR TOP 10-32 × 3/8″ 18-8, SL TRUS S
9	1	22450-0228	RESTRAINT CABLE ASSEMBLY
10	1	33486	TOP COVER 304 PANEL

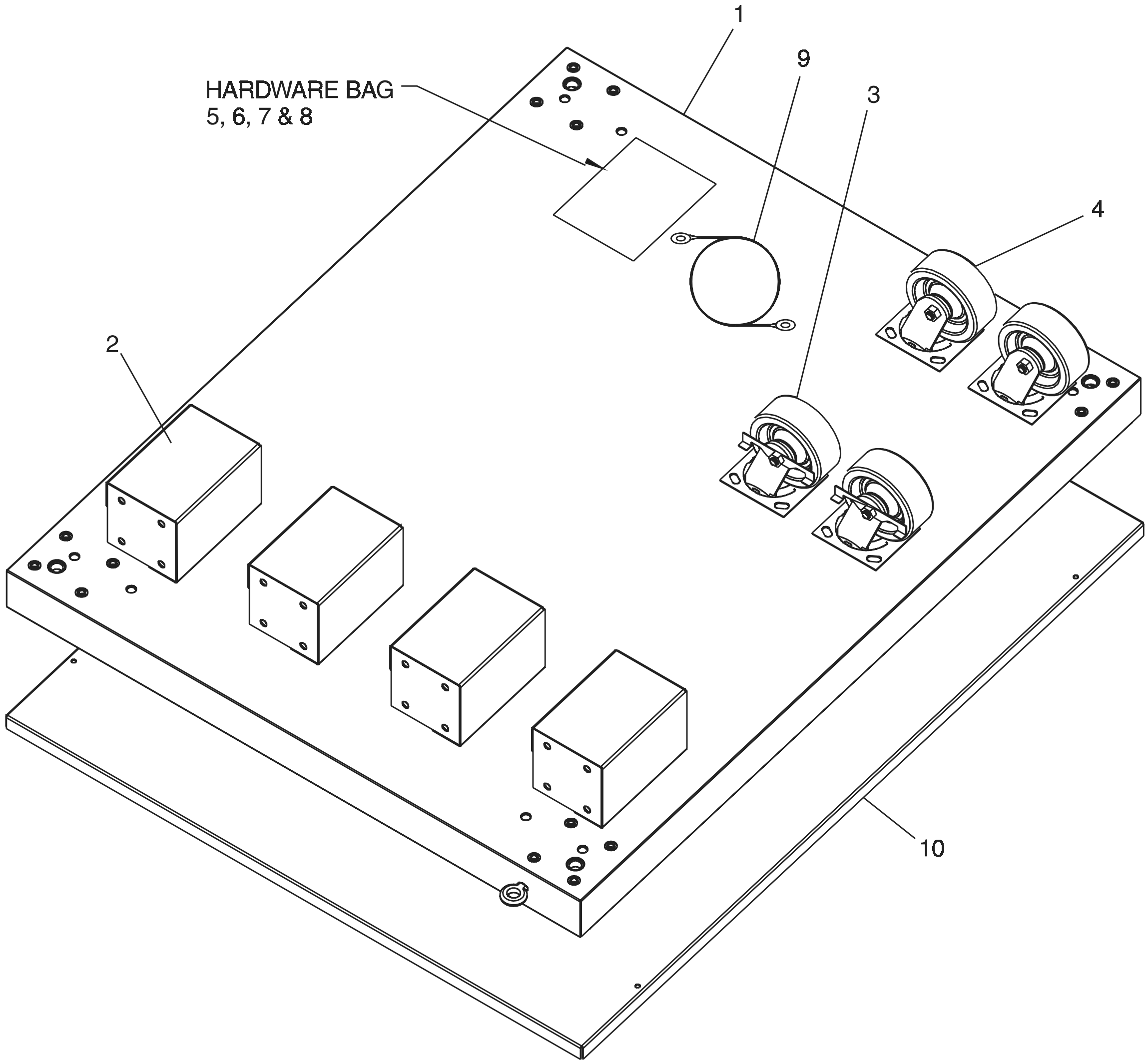


Figure 2-3. Model BE3240 Double Oven Option Base with Legs and Top

PARTS LIST FOR BE3240 SERIES DOUBLE OVEN OPTION - BASE w/6″ LEGS, CASTERS & TOP
P/N 34833

ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	37900-0025	COMPLETE BASE WELDMENT
2	4	37900-0102	TOP PLATE, LEG WELDMENT
3	2	22290-0009	SWIVEL CASTER W/BRAKE FLAT PLATE
4	2	22290-0010	SWIVEL CASTER FLAT PLATE
5	32	220373	3/8″-16 × 1″ HEX SCREW,SST
6	32	21416-0001	3/8″ FLAT WASHER, SS
7	32	21422-0001	3/8″ SPLIT LOCK WASHER, ZP
8	4	21256-0008	SCREWS FOR TOP 10-32 × 3/8″ 18-8, SL TRUS S
9	1	22450-0228	RESTRAINT CABLE ASSEMBLY
10	1	33486	TOP COVER 304 PANEL

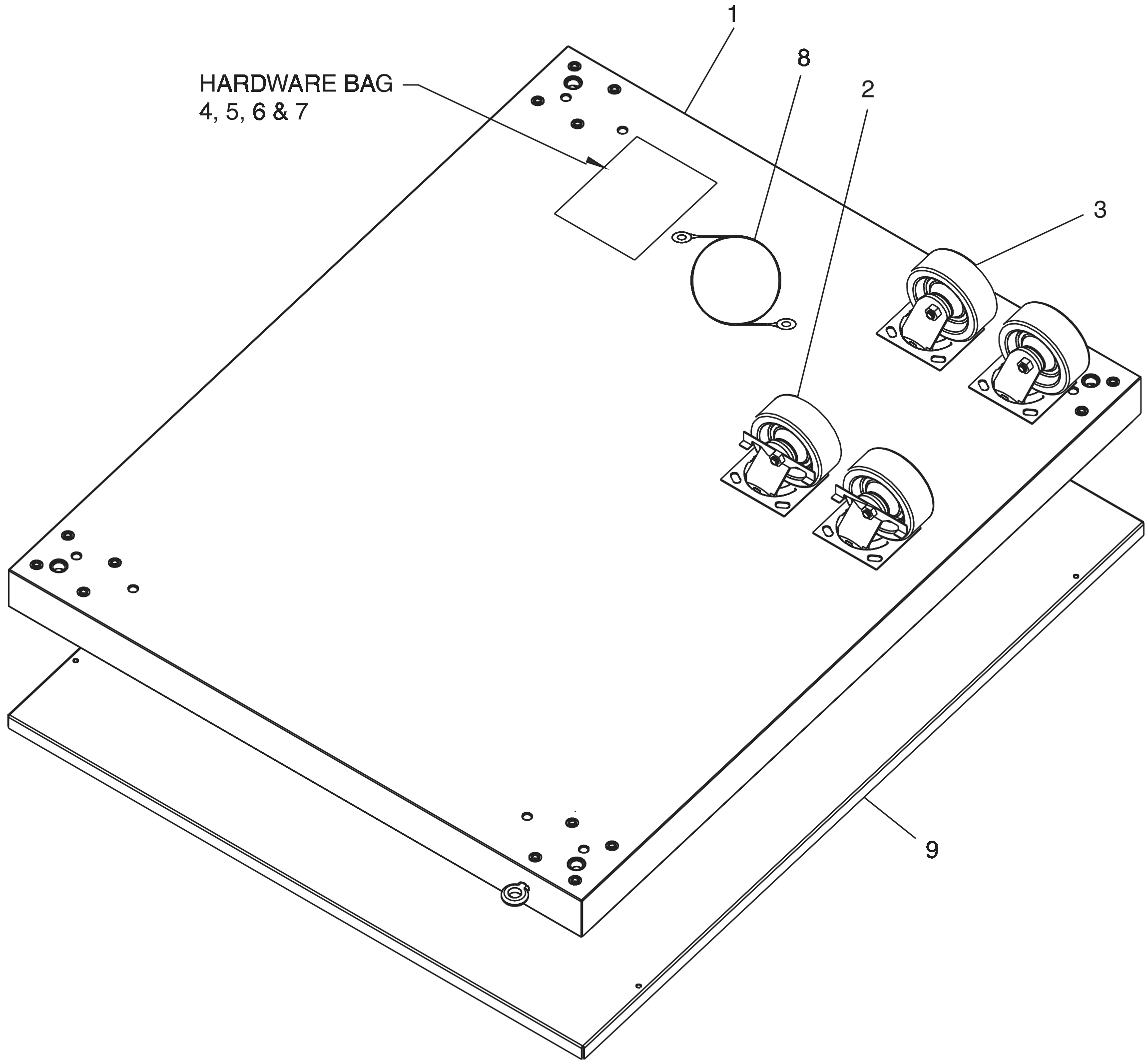


Figure 2-4. Model BE3240 Double Oven Option Base with Casters and Top

PARTS LIST FOR BE3240 SERIES DOUBLE OVEN OPTION - BASE w/CASTERS & TOP
P/N 34831

ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	37900-0025	COMPLETE BASE WELDMENT
2	2	22290-0009	SWIVEL CASTER W/BRAKE FLAT PLATE
3	2	22290-0010	SWIVEL CASTER FLAT PLATE
4	32	220373	3/8″-16 × 1″ HEX SCREW,SST
5	32	21416-0001	3/8″ FLAT WASHER, SS
6	32	21422-0001	3/8″ SPLIT LOCK WASHER, ZP
7	4	21256-0008	SCREWS FOR TOP 10-32 × 3/8″ 18-8, SL TRUS S
8	1	22450-0228	RESTRAINT CABLE ASSEMBLY
9	1	33486	TOP COVER 304 PANEL

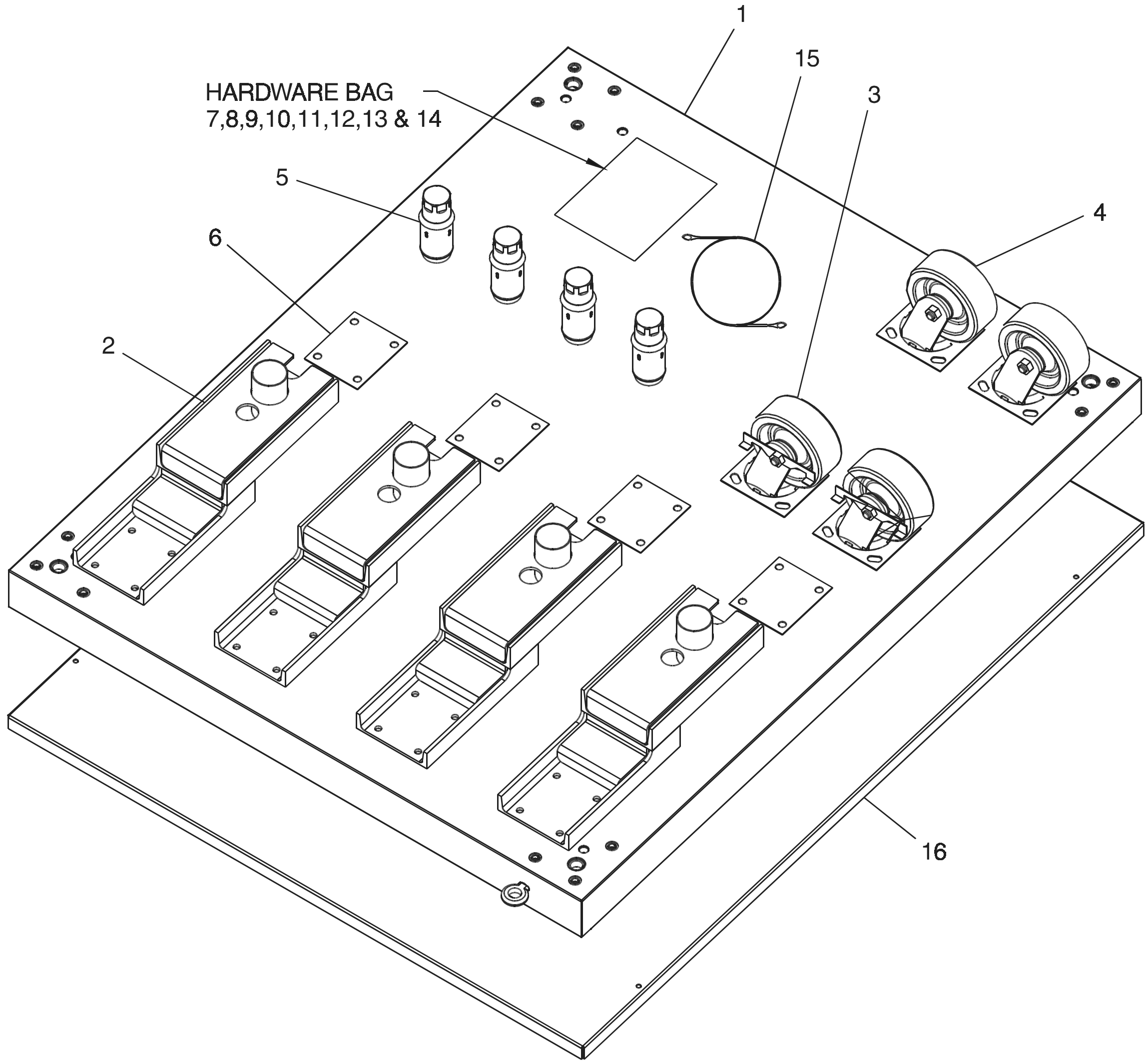
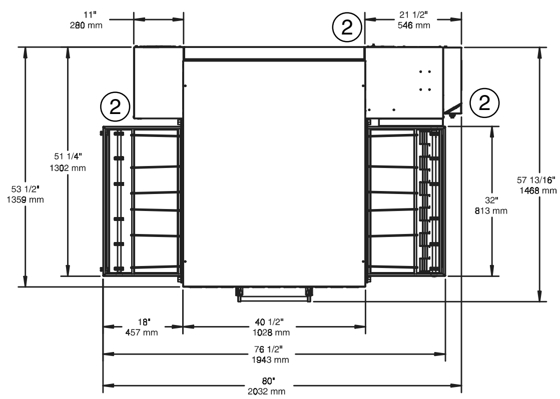


Figure 2-5. Model BE3240 Triple Oven Option Base with Outriggers and Top

PARTS LIST FOR BE3240 SERIES TRIPLE OVEN OPTION - BASE w/CASTERS & TOP P/N 51139

ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	54606	COMPLETE BASE WELDMENT
2	4	45209	QUAD OUTRIGGER WELDMENT
3	2	22290-0009	SWIVEL CASTER, W/BRAKE FLAT PLATE
4	2	22290-0010	SWIVEL CASTER, FLAT PLATE
5	4	45206	INSERT,QUAD ADJUSTMENT FOOT
6	4	45205	SPACER,QUAD CASTER
7	32	220373	3/8″-16 × 1″ HEX BOLT, SST
8	32	21416-0001	3/8″ FLAT WASHER, SS
9	32	21422-0001	3/8″ SPLIT LOCK WASHER, ZP
10	16	21172-0004	3/8″-16 NYLON INSULATED LOCKNUT, ZC
11	8	21216-0018	1/2″-13 × 1-1/4″ 18-8 HEX CAPSCREW
12	8	21416-0003	1/2″ 18-8 FLAT WASHER
13	8	21426-0004	1/2″ 18-8 LOCK WASHER
14	4	21256-0008	SCREWS FOR TOP 10-32 × 3/8″ 18-8, SL TRUS S
15	1	22450-0228	RESTRAINT CABLE ASSEMBLY
16	1	33486	TOP COVER 304 PANEL



1 Conduit for Electrical Connections

2 RECOMMENDED MINIMUM CLEARANCES:
Rear of Oven to Wall - 6″ (150mm)
Non-control End of Oven to Wall - 0″
Control End of Oven to Wall - 0″

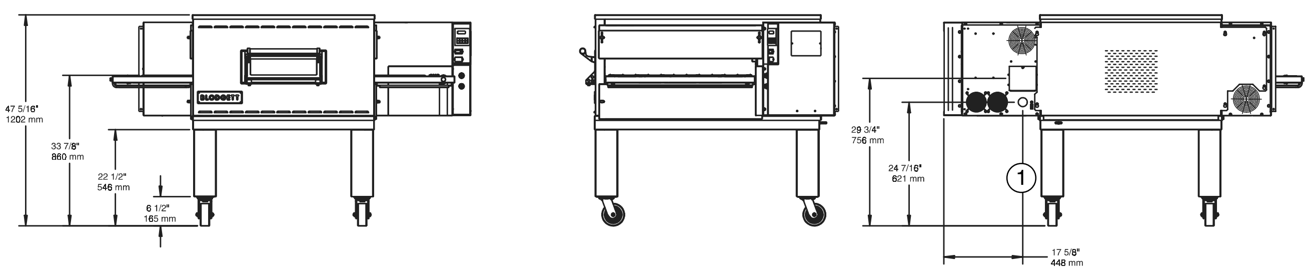


Figure 2-6. MODEL BE3240 SINGLE OVEN DIMENSIONS

(1) Conduit for Electrical Connections

(2) RECOMMENDED MINIMUM CLEARANCES:
Rear of Oven to Wall - 6″ (150mm)
Non-control End of Oven to Wall - 0″
Control End of Oven to Wall - 0″

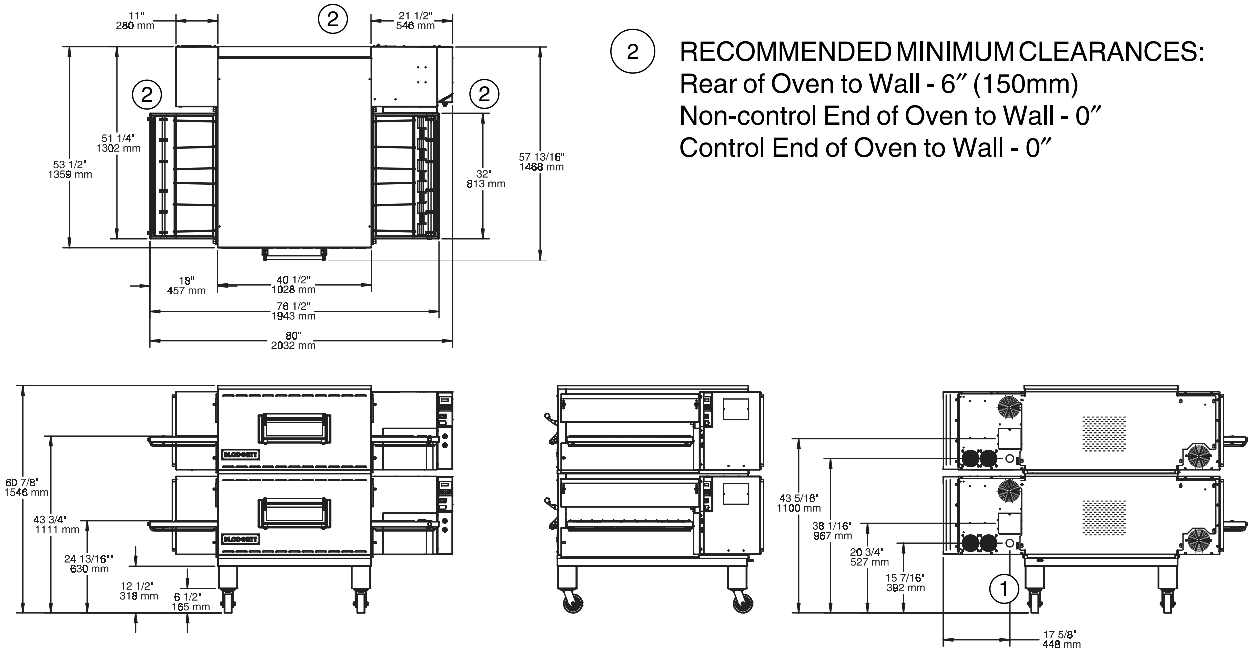


Figure 2-7. MODEL BE3240 DOUBLE OVEN DIMENSIONS

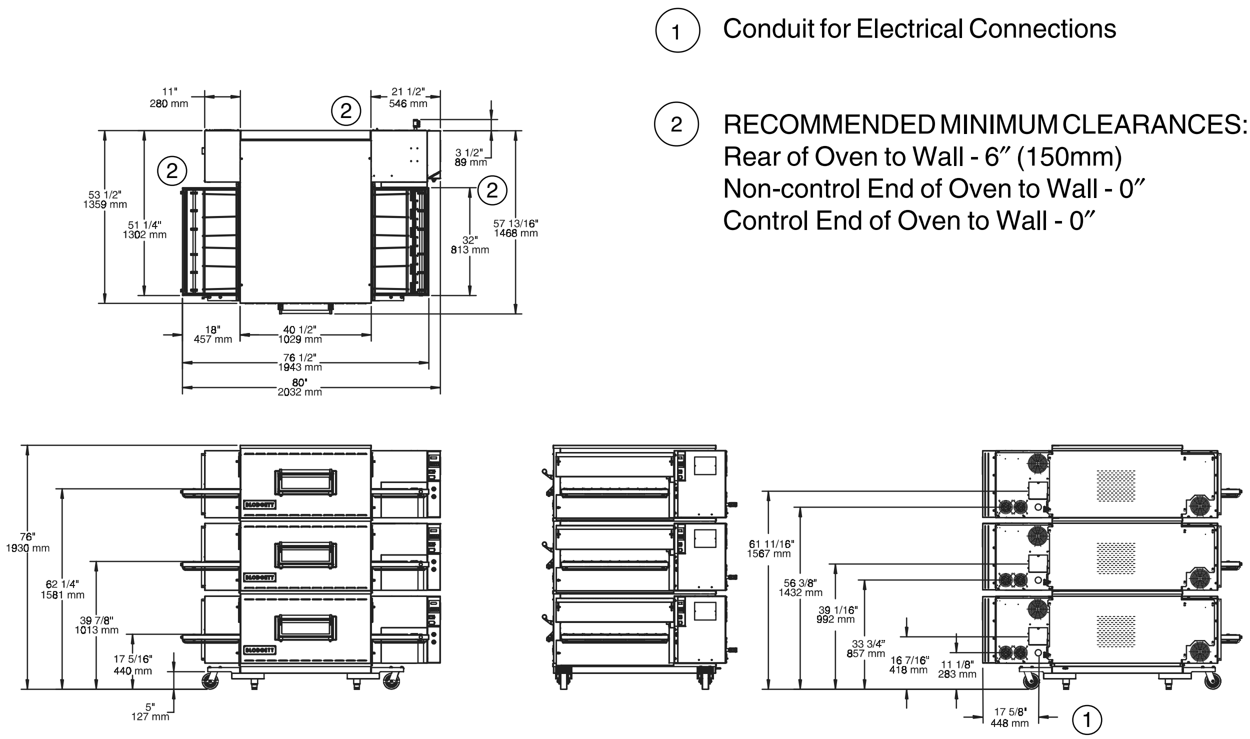


Figure 2-8. MODEL BE3240 TRIPLE OVEN DIMENSIONS

RESTRAINT CABLE INSTALLATION

Install the restraint cable assembly on the oven, as shown in Figure 2-9.

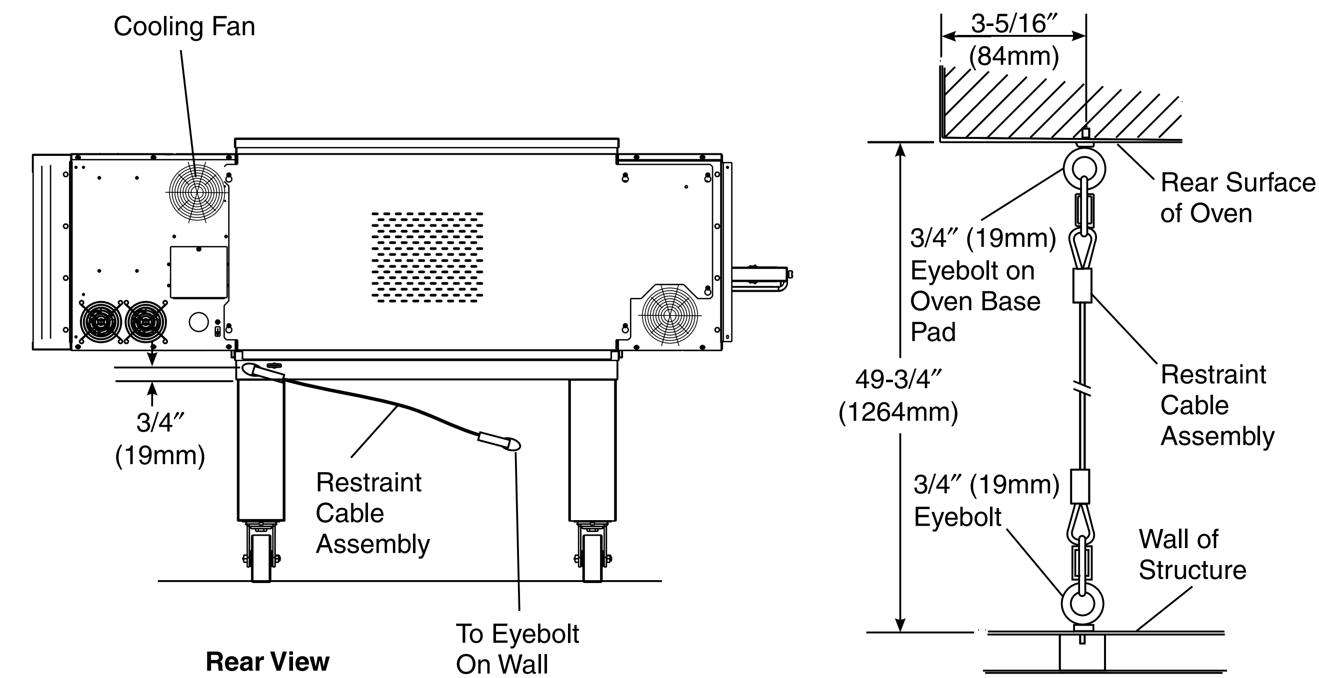


Figure 2-9. Restraint Cable Assembly Installation

UTILITY ROUGH-IN DIMENSIONS AND POSITIONING FOR BE3240-SERIES OVENS

WARNING
DO NOT USE CONDUIT OR GAS LINE FOR GROUND CONNECTION.

CAUTION
IT IS REQUIRED THAT THE OVEN BE PLACED UNDER A VENTILATION HOOD FOR ADEQUATE AIR SUPPLY AND VENTILATION.

ELECTRIC SUPPLY TO BE PROVIDED BY CUSTOMER

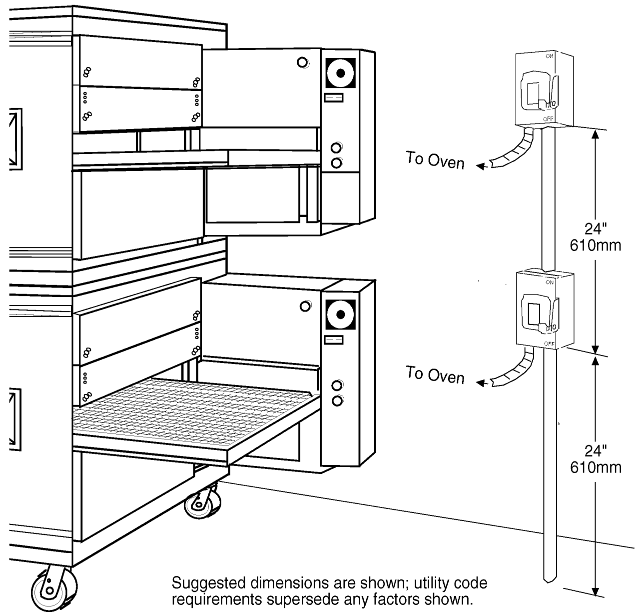


Figure 2-10. Typical BE3240-Series Oven(s) Installation

CIRCUIT BREAKER

Separate circuit breaker with lockout/tagout electrical shutoff for each oven. Wire each oven separately.

100 Amp circuit breaker for 200-240V, or 50 Amp circuit breaker for 380-480V.

ELECTRICAL SPECIFICATIONS

DOMESTIC: 208V main blower motors and elements, 3 Ph, 75 Amp draw, 50/60 Hz, 208-240V control circuit, 3 pole, 4 wire system per oven (3 hot, 1 grd).

Do *NOT* use conduit for ground.

or

DOMESTIC: 240V main blower motors and elements, 3 Ph, 65 Amp draw, 50/60 Hz, 208-240V control circuit, 3 pole, 4 wire system per oven (3 hot, 1 grd).

Do *NOT* use conduit for ground.

or

EXPORT: 380V elements, 3 Ph, 40 Amp draw, 50/60 Hz, 208-240V control circuit and main blower motor, 4 pole, 5 wire system per oven (3 hot, 1 neutral, 1 grd).

Do *NOT* use conduit for ground.

or

DOMESTIC: 480V elements, 3 Ph, 32.5 Amp draw, 50/60 Hz, 208-240V control circuit and main blower motor, 4 pole, 5 wire system per oven (3 hot, 1 neutral, 1 grd).

Do *NOT* use conduit for ground.

ELECTRICAL RATING

27 kW/hr.

SUPPLY WIRE

Supply wire size must be a minimum of #8 AWG (10^{2}mm) and must be in compliance with local codes.

NOTE: The electrical terminal connection marked “MP” located inside the control compartment is designated for the blue (neutral) wire to the oven. See the electrical wiring/schematics in Section 7 of this manual.

SUGGESTED

If space permits, service should be located near the control console end of the oven(s) to allow convenient access to safety switches.

II. VENTILATION GUIDELINES

A mechanically driven ventilation system is required for the BE3240 Series Blodgett conveyorized gas ovens. The minimum hood canopy dimensions are outlined below.

Local codes and conditions vary greatly from one area to another and must be complied with. Following are the suggested requirements for good ventilation. Please remember these are recommendations or guidelines, you may have a special condition or problem that will require the services of a ventilation engineer or specialist. Proper ventilation is the oven owner's responsibility. Improper ventilation can inhibit oven performance. It is recommended that the ventilation and duct work be checked out every three months. Grease filters in the intake of the hood may be required by local codes.

VENTILATION HOOD

The rate of air flow exhausted through the ventilation system is generally between 1400 and 2500 cu. ft./min. (40 and 70 m^3/min), but may vary depending on the oven configuration and hood design. To avoid a negative pressure condition in the kitchen area, return air must be brought back to replenish the air that was exhausted. A negative pressure in the kitchen can cause heat related problems to the oven components as if there were no ventilation at all. The best method of supplying return air is through the heating, ventilation and air conditioning system. Through they system, the air can be temperature controlled for summer and winter. Return air can be brought in directly from outside the building, but detrimental affects can result from either extreme seasonal hot and cold temperature from the outdoors.

NOTE: *Return air from fan driven system within the hood must not blow at opening of bake chamber or poor oven baking performance will result.*

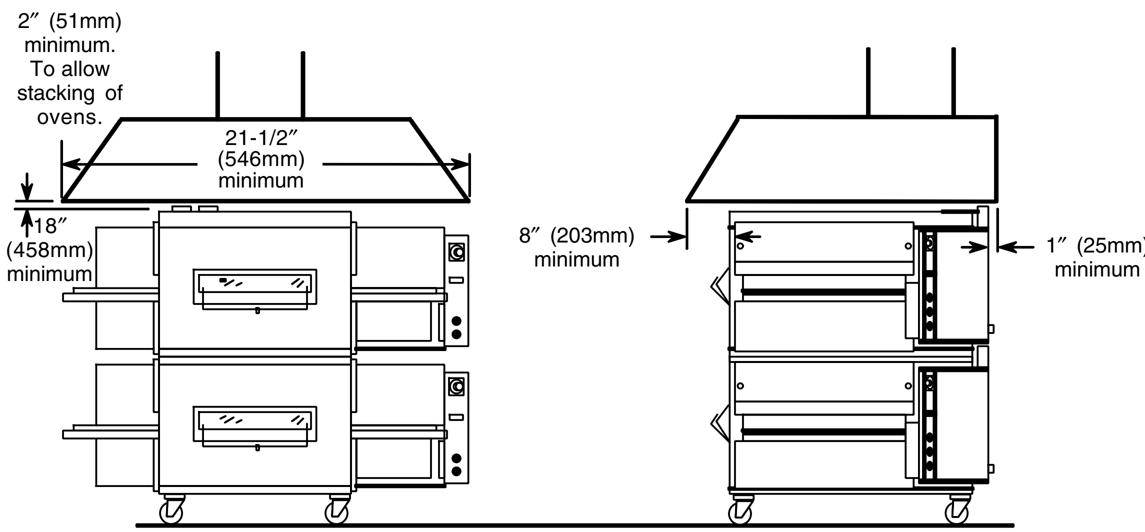


Figure 2-11. Vent Hood

III. ELECTRICAL CONNECTION INFORMATION FOR BE3240-SERIES OVENS.

> **WARNING**
>
> Authorized supplier personnel normally accomplish the connections for the ventilation system, electric supply, and gas supply, as arranged by the customer. Following these connections, the factory-authorized installer can perform the initial startup of the oven.

Check the oven data plate (Figure 2-12) before making any electric supply connections. Electric supply connections must agree with data on the oven data plate.

NOTE: The electric supply installation must satisfy the requirements of the appropriate statutory authority, such as the National Electrical Code (NEC), ANSI/NFPA70, (U.S.A.); the Canadian Electrical Code, CSA C22.2; the Australian Code AG601; or other applicable regulations.

A fused disconnect switch or a main circuit breaker (customer furnished) MUST be installed in the electric supply line for each oven; it is recommended that this switch/ circuit breaker have lockout/tagout capability. The electric supply connection must meet all national and local electrical code requirements. Copper is the recommended material for the electrical supply conductors.

IV. ELECTRIC SUPPLY FOR ELECTRICALLY HEATED OVENS

Power requirements for electrically heated ovens are usually 208 - 240VAC, 3-phase, 4-wire (3 'hot', 1 ground), although ovens built for export can have power requirements of 380VAC and 480VAC. (These ovens have a 5-wire system.) A 2″ (51mm) diameter cutout/hole in the back of the machiney compartmenet provides access for the electrical supply connections. Using flexible cable(s) for the electrical power supply conductors requires a 2″ (51mm) strain-relief fitting (not furnished) to enable safe access to the terminal block from which oven power is distributed.

The supply conductors must be of the size and material (copper) recommended to provide the current required; (refer to the data plate for the ampere specifications). The electric current rating for each conductor supplying a BE3240-Series Oven ranges from a minimum of 95 amperes to a maximum of 100 amperes.

Typical specifications for each BE3240-Series Oven are 208V or 240V, 3-phase, 4-wire, 100-ampere, 27kW; this oven requires 100-ampere service. A BE3240-Series Double Oven (Figure 1-2) installation would require two 100-ampere service connections, one for each oven; the 27kW power consumption also doubles for such an installation to 54kW.

The 208V or 240VAC electrically heated oven uses two legs of the supplied power to provide 208V or 240VAC power for the oven control circuitry.

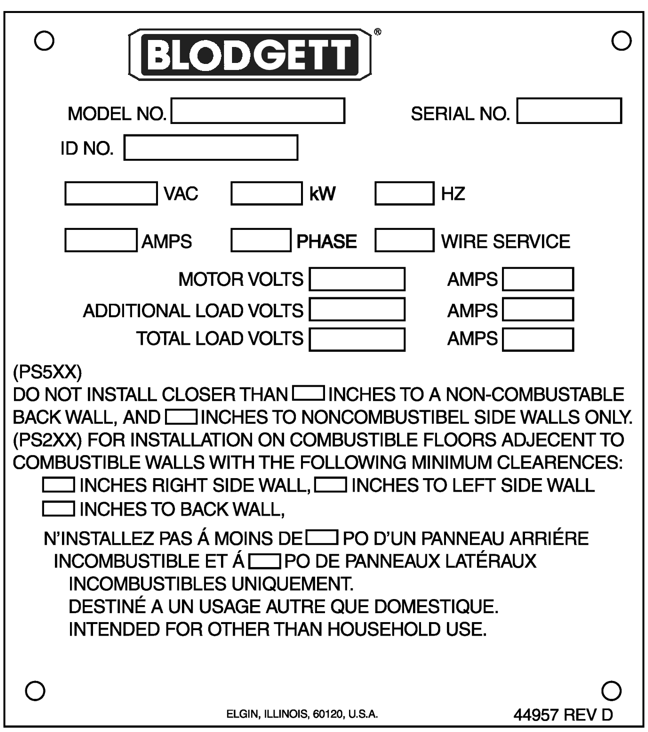


Figure 2-12. Typical Electric Oven Data Plate

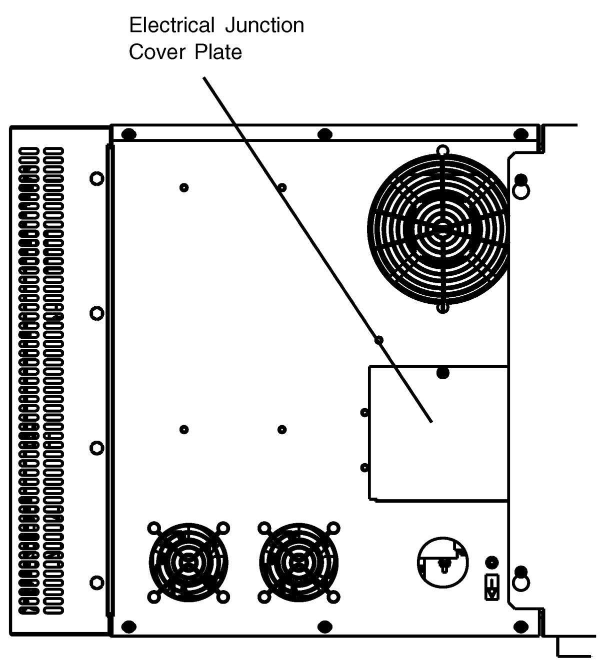


Figure 2-13. Junction Connection Box

V. CONVEYOR REAR STOP AND END STOP INSTALLATION

Locate the conveyor rear stop and end stop in the installation kit. Install the rear stop and end stop at the exit end of the oven. See Figure 2-14.

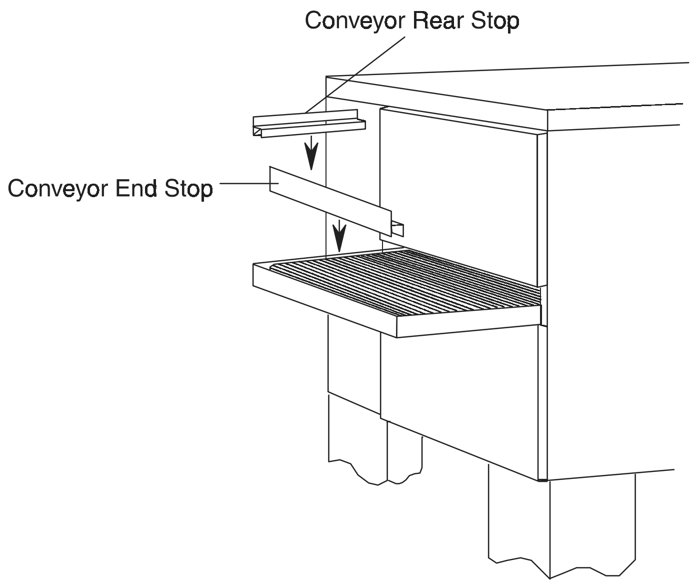


Figure 2-14. Installing Rear and End Stops

NOTES

SECTION 3
OPERATION

I. CONTROL FUNCTIONS

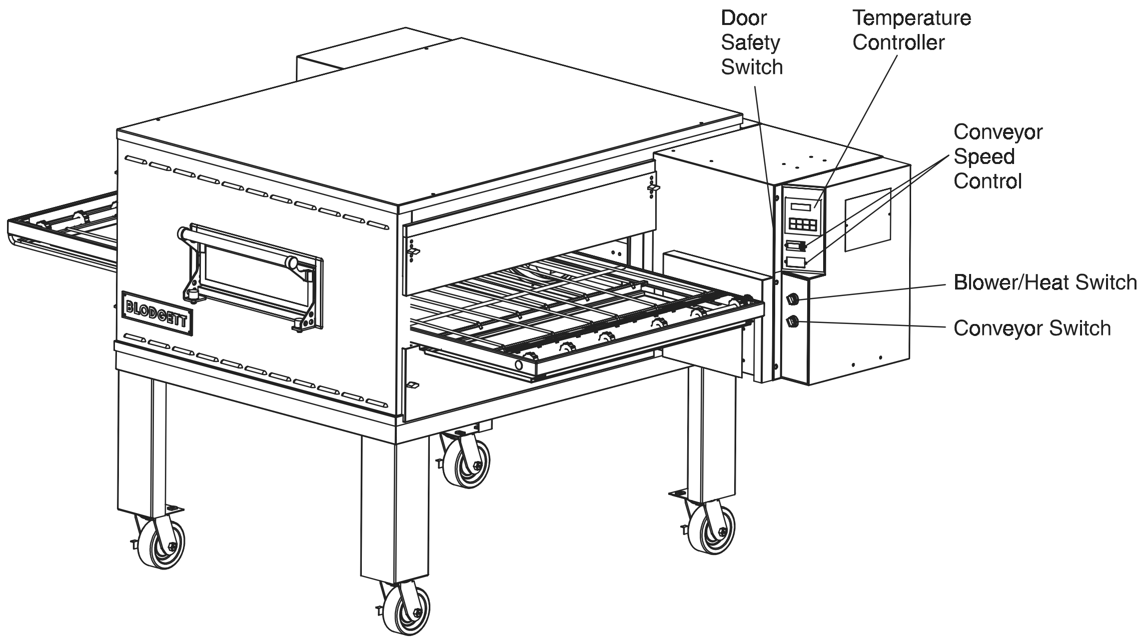


Figure 3-1. BE3240-Series Oven Control Functions

> **WARNING**
>
> The burner cannot operate and gas cannot flow through the burner without electric power. Do NOT attempt to operate the oven during a power outage.

> **WARNING**
>
> A possibility of injury from rotating parts and electric shock exists in this oven.
> Never disassemble or clean the oven with the BLOWER switch or any other oven control turned "ON" or "I". Turn "OFF" or "O" and lockout or tagout all electric power to the oven before attempting to clean or service this oven.

II. COMPONENT INFORMATION AND LOCATION (Figures 3-1 and 3-2)

A. Door Safety Switch

The Door Safety Switch is located at the lower left side of control panel opening. Opening the control panel door permits this switch to open, disconnecting power to all electrical controls.

> **CAUTION**
> Do NOT touch the wires going to this safety switch. Current is <u>always</u> present.

B. Blower/Heat Switch

The blower switch has two positions. The switch must be "ON" or "I" for the burner to come on and permit the oven to warm up. The fan circulates the air throughout the oven and <u>must</u> stay on during <u>baking</u> and during the <u>cool down cycle</u> above 200°F (93°C) to prevent blower bearing damage. To protect the blower motor and bearings a thermostatic override is built into the oven. If the temperature inside the oven is over 180°F (82°C) the main blower will continue to run after the blower switch is turned to the "OFF" or "O" position.

An air pressure switch monitors the air flow from the blower, acting as a safety interlock for the burner. The burner cannot light, if the air switch does not sense air flow off the main blower fan.

Turning the HEAT switch to "ON" or "I" will energize the electric heating system. This switch is in series with the blower fan motor and high temperature override switch. Both switches must be closed before the heating elements an be energized.

C. Temperature Controller

The temperature controller is a solid-state, on/off type to maintain the operator-set temperature. The temperature controller continuously monitors the oven temperature and turns on the modulating solenoid valve in a gas-heated oven. The heat is on for the time required to maintain a constant oven temperature.

The temperature controller contains a low-limit switch which allows the oven to cool down to 200°F (93°C) before shutting off the blower. A high-limit indication (ALM 1) will appear on the display if the oven reaches 650°F (343°C).

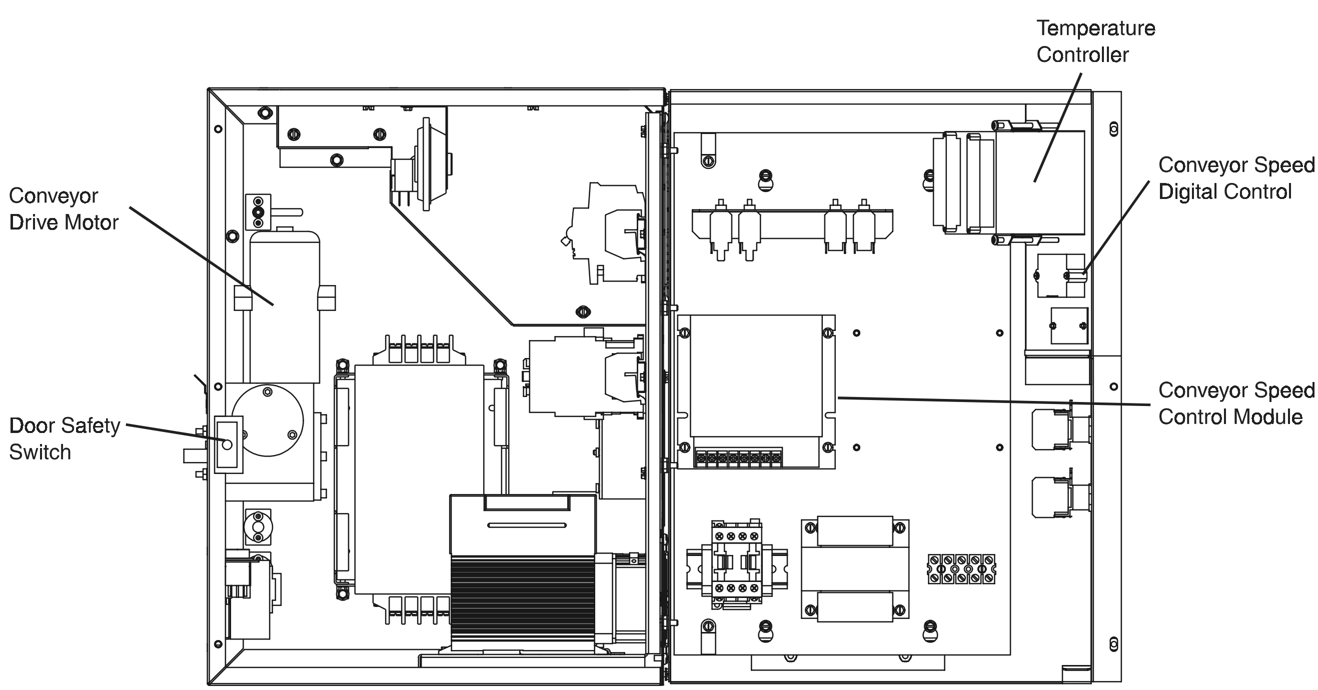


Figure 3-2. Interior View of Machinery Compartment and Control Console

D. Conveyor

The on-off switch for the conveyor motor is on the control panel. Also on the control panel is the digital conveyor speed control. The digital control can be adjusted from 3 min. to 30 min. bake time (conveyor speed). Refer to Figure 3-3.

Conveyor speed is measured by the amount of time it takes for an item to go through the bake chamber of the oven.

MEASURING CONVEYOR SPEED.

See Figures 3-4 and 3-5.

To check conveyor speed, place a product item at the entrance end of baking chamber as shown. Time how long it takes for the leading edge of the item to go from the entrance end of the baking chamber to the exit end. This should be the conveyor speed shown on the conveyor speed digital control.

NOTE: In Figures 3-4 and 3-5, the oven shown is with the conveyor running right to left.

> **WARNING**
>
> Possibility of injury from rotating parts and electrical shock exist in this oven.
>
> Never disassemble or clean the oven with the blower switch or any other part of the oven turned "ON" or "I". Turn "OFF" or "O" and lockout or tagout all electrical power to the oven before attempting to clean or service this oven.

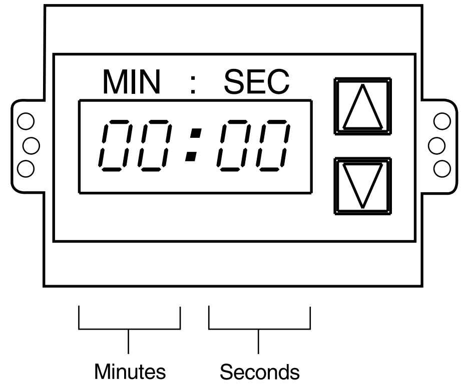


Figure 3-3. Conveyor Speed Digital Control

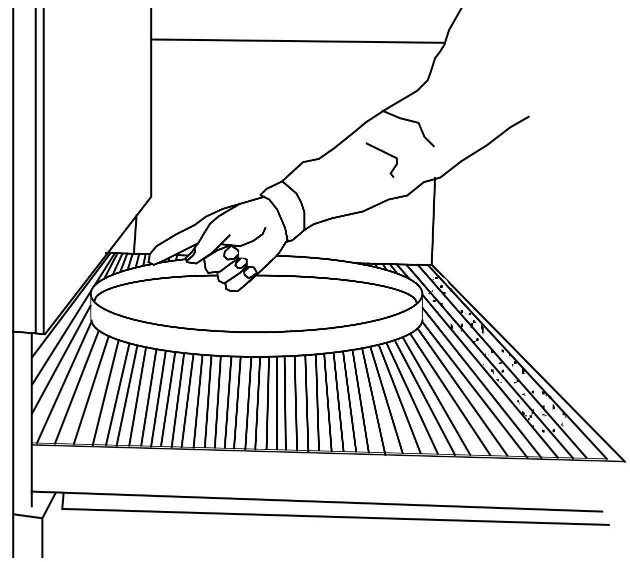


Figure 3-4. Product at entrance end of baking chamber – BEGINNING OF TIMING

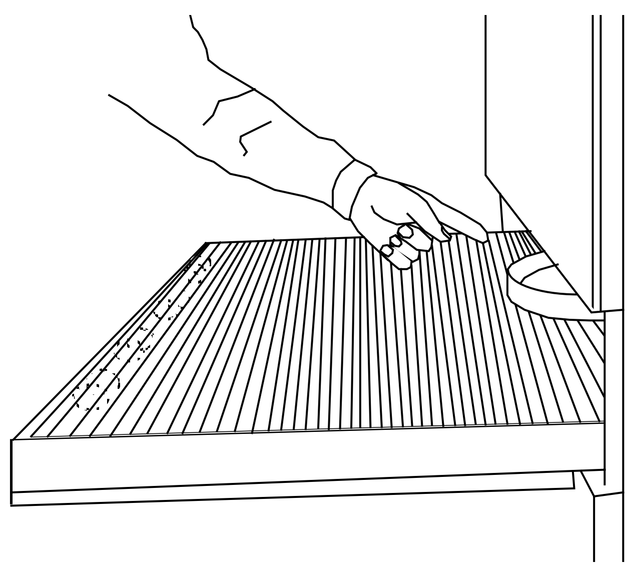


Figure 3-5. Product at exit end of baking chamber – END OF TIMING

> **WARNING**
>
> ***OVEN MUST BE KEPT CLEAR OF COMBUSTIBLES AT ALL TIMES.***

III. STEP-BY-STEP OPERATION

Control Panel (On split belt ovens, two conveyor speed controls are mounted on the control panel.)

A. Startup Procedures

Daily Startup

1. Turn the BLOWER/HEAT switch (Figure 3-6) to the "ON" or "I" position. This starts the main blower fan and the cooling fan. The blower circulates air through the air fingers and must stay on during the cooking or baking process.

2. Check to see if the cooling fan (see Figure 1-8) is operating when the blower switch (see Figure 3-6) is turned "ON" or "I". The cooling fans cool the control components and burner blower motor. The cooling fan, located at the rear of the electrical control cabinet blows air into and through the cabinet. Air is exhausted through the front of the cabinet and also out the front of the oven. Refer to Daily Maintenance Section for fan intake checking procedure.

> **IMPORTANT NOTE**
>
> The cooling fan operates when the BLOWER/HEAT switch is turned "ON" or "I". It must operate to keep the control console below 140°F (60°C).

3. Turn the CONVEYOR switch (Figure 3-6) to the "ON" or "I" position. This starts the conveyor belt moving through the oven. Set the conveyor speed for the desired baking time. Refer to the following Procedures E, F and G.

4. Set the temperature controller to the desired baking temperature. See section on bake times to determine desired temperature.

NOTE: For complete temperature controller operation instructions refer to Step C.

6. Close front window.

7. Oven will reach a baking temperature of 500°F (232°C) in approximately 10 minutes. Allow the oven to cycle for 30 minutes after it has reached desired bake temperatue. The oven is now ready for baking.

Power Failure

In case of power failure, turn off all switches; open oven window and remove product. After power has been reestablished follow normal startup procedure.

B. Shutdown Procedure

1. Turn the BLOWER/ HEAT switch to "OFF" or "O".

NOTE: The blowers will remain on until the oven temperature cools down to 200°F (93°C) at which time they will stop automatically.

2. Make certain that there are no products left on the conveyor inside the oven. Turn the CONVEYOR switch to "OFF" or "O".

3. Open the oven window.

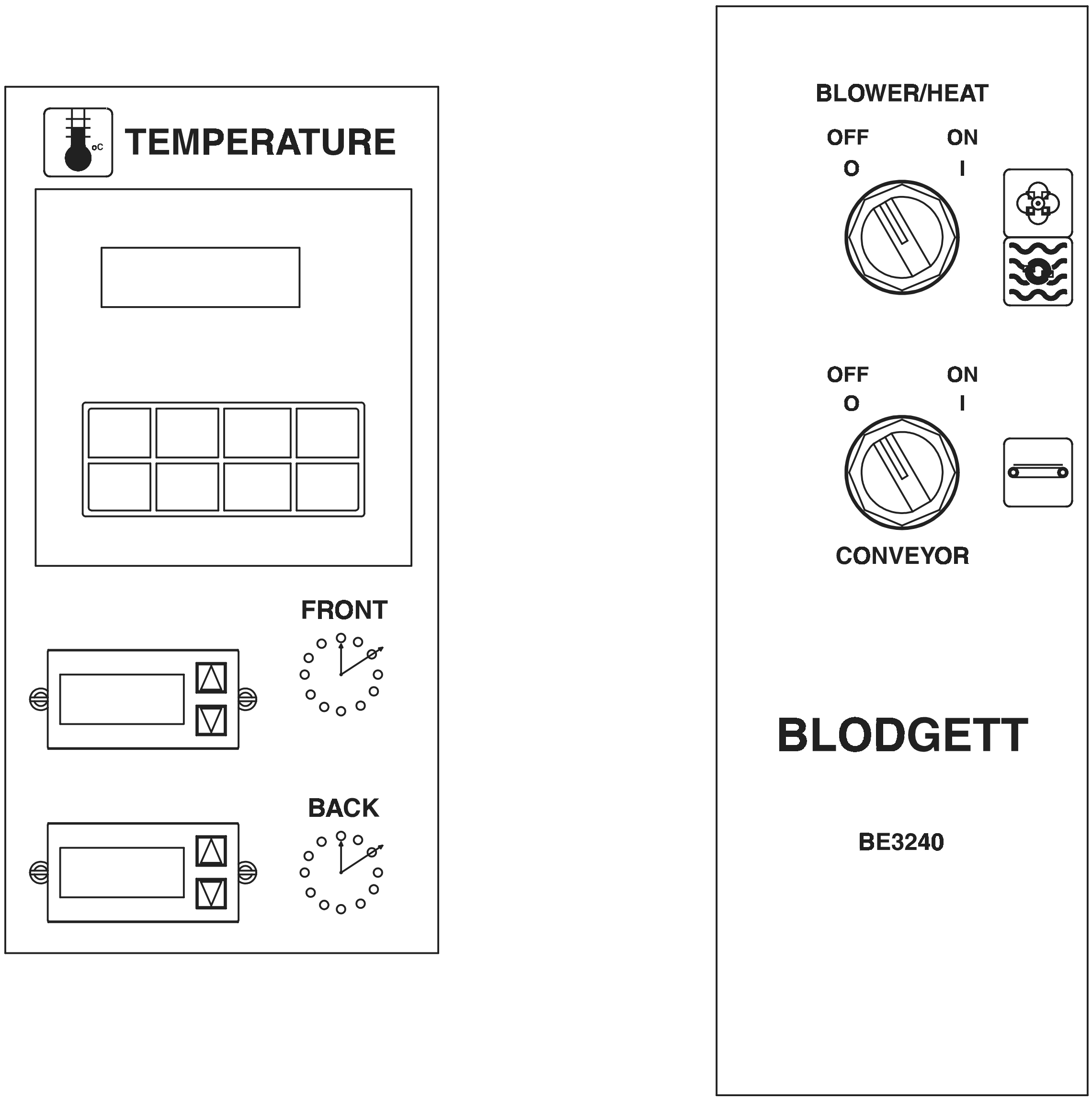


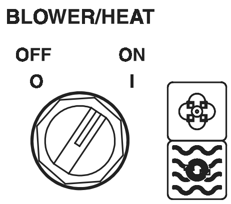
Figure 3-6. Control Panel

II. NORMAL OPERATION - STEP-BY-STEP

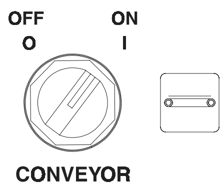
A. Daily Startup Procedure

1. Check that the circuit breaker/fused disconnect is in the on position. Check that the window is closed.

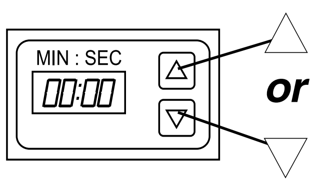
2. Turn the "BLOWER/ HEAT" ( )( ) switch to the "ON" ("I") position.



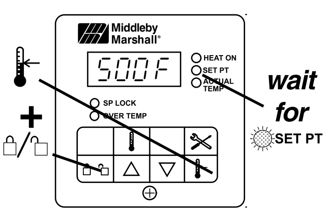
3. Turn the "CONVEYOR" ( ) switch to the "ON" ("I") position.



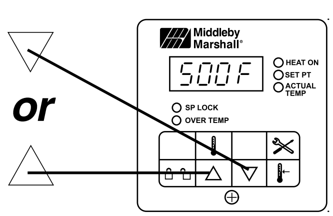
4. If necessary, adjust the conveyor speed setting by pressing the △ or ▽ pushbuttons on the conveyor speed controller to change the displayed bake time.



5. Adjust the temperature controller to a desired set temperature, if necessary.
   - Press the Set Point and Unlock keys at the same time. Wait for the "SET PT" light to turn on.

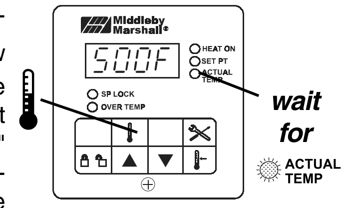


   - Press the Up Arrow and Down Arrow Keys as necessary to adjust the setpoint.



6. Wait for the oven to heat to the setpoint temperature. Higher setpoint temperatures will require a longer wait. The oven can reach a temperature of 500°F (232°C) in approximately 5 minutes.

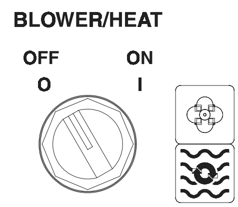
7. *(Optional)* Press the Temperature ( ) key to show the Actual Temperature in the display, and wait for the "ACTUAL TEMP" light to turn on. This allows you to monitor the oven temperature as it rises to the setpoint.



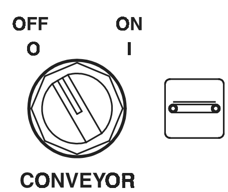
8. Allow the oven to preheat for 10 minutes after it has reached the set point temperature.

B. DAILY SHUTDOWN PROCEDURE

1. Turn the "BLOWER"/ "HEAT" ( )( ) switch to the "OFF" ("O") position. Note that the blowers will remain in operation until the oven has cooled to below 200°F (93°C).



2. Make certain that there are no products left on the conveyor inside the oven. Turn the "CONVEYOR" ( ) switch to the "OFF" ("O") position.



3. Open the window to allow the oven to cool faster.

4. After the oven has cooled and the blowers have turned to the "OFF" or "O" position, switch the circuit breaker/fuse disconnect to the "OFF" or "O" position.

CAUTION

In case of power failure, turn all switches to the "OFF" ("O") position, open the oven window, and remove the product. After the power has been restored, perform the normal startup procedure. IF THE OVEN WAS SWITCHED OFF FOR LESS THAN 5 MINUTES, <u>WAIT FOR AT LEAST FIVE MINUTES BEFORE RESTARTING THE OVEN.</u>

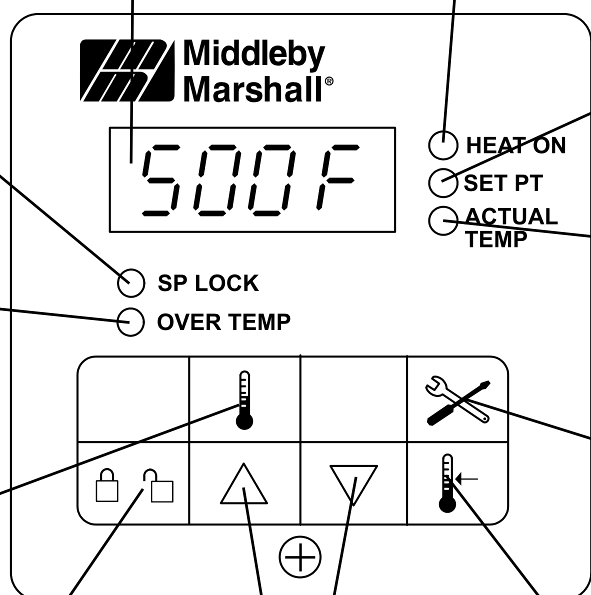
Display
Shows the Set Point or the Actual Temperature in degrees Fahrenheit (F) or Celsius (C).

"HEAT ON" Light
Lights when the burner is in operation.

"SP LOCK" Light
Lights when the set point is locked out from changes. This setting can only be changed by service personnel.

"SET PT" (setpoint) Light
Lights when the set point is shown in the display.

OVERTEMP Light
Lights when the oven temperature is greater than 650°F (343°C). Refer to <u>Quick Reference: Troubleshooting</u> in this section.



"ACTUAL TEMP" Light
Lights when the Actual Temperature is shown in the display.

Temperature Key
Press this key once to view the Actual Temperature in the Display.

Service Key
Service use only.

Unlock Key
Press this key together with the Set Point Key to allow the Set Point to be changed. Changes can only be made for 60 seconds.

Up Arrow and Down Arrow Keys
Press these keys to adjust the Set Point up or down. If the Set Point will not change, refer to <u>Set Point Key</u> and <u>Unlock Key</u> in this section.

Set Point Key
Press this key together with the Unlock Key to allow the Set Point to be changed. Changes can only be made for 60 seconds.

IV. QUICK REFERENCE: TROUBLESHOOTING

SYMPTOM	PROBLEM	SOLUTION
OVERTEMP *light is lit, food product is undercooked*	The oven temperature exceeded 650°F (343°C), and the burner was automatically shut down.	• Follow the procedures under <u>Daily Shutdown Procedures</u> in this section to shut down the oven. Contact your Middleby Marshall Authorized Service Agent to determine and correct the cause of the condition to prevent damage to the oven.
Oven will not turn on at all	Electrical power may not be reaching the oven, or the controls may be set incorrectly.	• Check that the circuit breaker/fused disconnect is turned on. • Check that the "BLOWER/HEAT" ()() Switch is in the "ON" ("I") position. The burner cannot engage until the blowers are in operation.
Oven shuts down shortly after it is turned on	The gas burner did not light within 90 seconds of turning the "BLOWER/HEAT" ()() Switch to the "ON" ("I") position. This automatically engages a safety lockout mode.	• Turn the "BLOWER" ()/"HEAT" (), and "CONVEYOR" ()switches to the "OFF" ("O") position. • Wait for AT LEAST FIVE MINUTES before restarting the oven. • Repeat the Daily Startup procedure.
rSEt *appears in display, oven is not heating*	The oven did not reach 200°F (93°C) within 15 minutes of startup, and the oven has stopped heating.	• Turn the "BLOWER" ()/"HEAT" (), and "CONVEYOR" ()switches to the "OFF" ("O") position. • Wait for AT LEAST FIVE MINUTES before restarting the oven. • Repeat the Daily Startup procedure.
Oven will not heat	Controls may be set incorrectly.	• Check that the Set Point is correctly set. • Check that both the "BLOWER" ()/"HEAT" () Switch are in the "ON" ("I") position. • If the oven still will not heat,turn the "BLOWER" ()/"HEAT" (), and "CONVEYOR" ()switches to the "OFF" ("O") position. • Wait for AT LEAST FIVE MINUTES before restarting the oven. • Repeat the Daily Startup procedure. Check that the Set Point is above 200°F (93°C).
Oven is operating, but little or no air is blowing from air fingers	Air fingers may have been reassembled incorrectly after cleaning.	• Turn the oven to the "OFF" or "O" position, and allow it to cool. Disconnect electrical power to the oven. • Refer to Section 4, <u>Maintenance</u>, for instructions on reassembling the air fingers.
Conveyor moves with a jerky motion, or will not move at all	Conveyor may be jammed on an object in the oven, or conveyor belt or drive chain tension may be incorrect.	• Turn the oven to the "OFF" or "O" position, and allow it to cool. Disconnect electrical power to the oven. • Check if the conveyor is blocked by an object inside the oven. • Refer to Section 4, <u>Maintenance</u>, for instructions on checking the conveyor and drive chain tension.
Food products are overcooked or undercooked.	Controls may be set incorrectly.	• Check that the set temperature and bake time settings are correct.

IF THESE STEPS FAIL TO RESOLVE THE PROBLEM, CONTACT YOUR LOCAL BLODGETT AUTHORIZED SERVICE AGENT. A SERVICE AGENCY DIRECTORY IS SUPPLIED WITH YOUR OVEN.

SECTION 4
MAINTENANCE

WARNING

Possibility of injury from rotating parts and electrical shock exist in this oven. Turn off and lockout or tagout electrical supply to oven(s) before attempting to disassemble, clean or service oven(s). Never disassemble or clean the oven with the blower switch or any other part of the oven turned on.

WARNING

Before performing any maintenance work or cleaning, turn main power switch off.

CAUTION

When cleaning do not use any abrasive cleaning materials or water spray, wipe clean only. Never use a water hose or pressurized steam cleaning equipment when cleaning this oven.

NOTICE

If the oven is to be removed from its installed location for servicing, perform the following procedure:

1. Switch off the oven and allow it to cool. Do NOT service the oven while it is warm.
2. Turn off main circuit breakers and disconnect connector from oven.
3. Turn the adjustable legs to put weight on the casters.
4. Move oven to desired location for servicing.
5. When servicing is complete, move oven to original location.
6. Adjust legs to level oven and take weight off casters.
7. Connect electrical and gas connectors to oven.
8. Turn on main circuit breakers.
9. Follow normal startup instructions.

I. MAINTENANCE - DAILY

A. Exterior

Everyday you should clean the outside of the oven with a soft cloth and mild detergent.

> **WARNING**
>
> **Never use a water hose or pressurized steam cleaning equipment when cleaning the oven.**

B. Cooling Fan

1. FOUR COOLING FAN GRILLES AT THE REAR OF EACH OVEN CONTROL COMPARTMENT MUST BE CLEANED DAILY - Clean grilles with a stiff nylon type brush.

2. Check the air intake of the cooling fan daily. The best time to check is right after starting the oven.

> **IMPORTANT NOTE**
>
> The cooling fan operates when the blower switch is turned to "ON" ("I"). It must operate to keep the electrical control cabinet below 140°F (60°C).

> **WARNING**
>
> IF FAN BLADE IS NOT ROTATING, BROKEN, OR FAN ASSEMBLY IS MISSING FROM MAIN BLOWER MOTOR SHAFT, DO NOT OPERATE OVEN. REPLACE COOLING FAN BLADE BEFORE OPERATING OVEN. Serious damage could be done to the burner blower motor and/or solid-state electrical components if oven is operated while cooling fan is not running or vent grille is plugged.

3. Using a stiff nylon brush clean control compartment vent grille. Hot air from control compartment exits from this grille.

C. Conveyor Belt (Figure 4-2)

Everyday, just after starting the oven, stand at the unloading end of the conveyor, and with a brush, remove food particles (crumbs, etc.) clinging to the conveyor belt, brushing them into the crumb pan.

D. Crumb Pans (Figure 4-2)

Remove and clean the crumb pan at each end of the oven. Each crumb pan can be removed by sliding it out, as shown in Figure 4-2. Reinstall the crumb pans after cleaning.

E. Window

The window can be cleaned daily while it is in place.

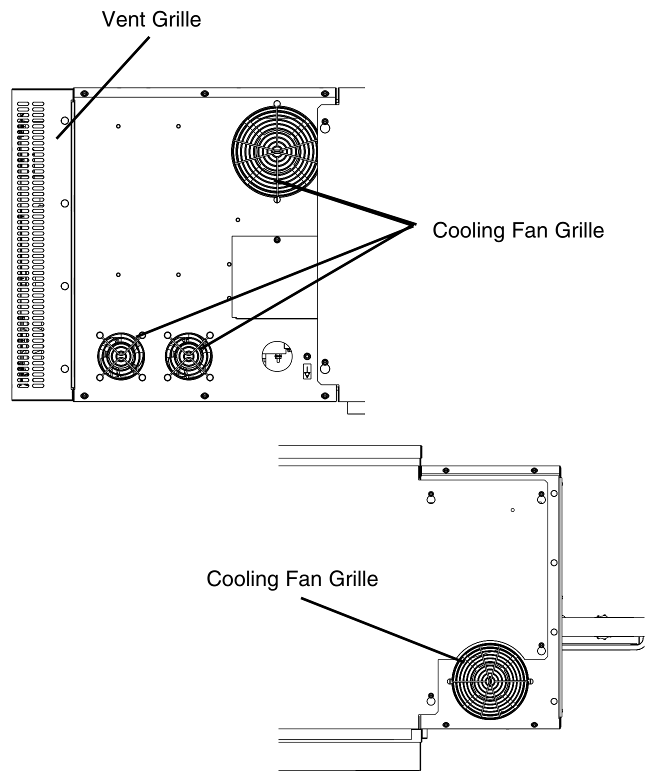


Figure 4-1. Oven Cooling Fans

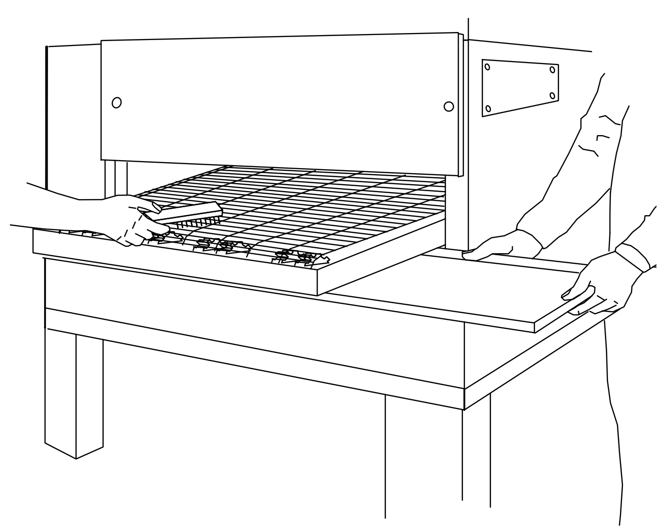


Figure 4-2. Conveyor Belt and Crumb Pan Cleaning

II. MAINTENANCE - MONTHLY

NOTE: **The oven interior may require cleaning more than once a month depending on the volume of baking. To clean the interior, you have to disassemble some parts of the oven.**

When cleaning your Series BE3240 Oven note the following:

PRECAUTIONS-

1. Do not use excessive water or saturation of oven insulation will occur.

2. Do not use a caustic oven cleaner or the aluminized finger manifold surfaces will be severely damaged.

When cleaning your oven, first remove all heavy debris with a vacuum cleaner. Use a damp cloth for light cleaning. For heavier cleaning of baked on grease and carbon deposits use a non-caustic cleaner that will not react with the aluminized finger manifold surfaces.

You can order non-caustic cleaner from your local authorized Blodgett Parts Distributor in the quantities listed below:

Part #	Quantity
27170-0244	Case of Quarts (6)
27170-0246	Case of Gallons (4)

A. Removing Conveyor From Oven For Cleaning

1. Remove crumb pans as shown in Figure 4-2.

2. Remove upper and lower end plugs from each end of oven by removing the two wing screws from each end plug.

3. Remove the conveyor end stop and the conveyor rear stop (Figure 4-3).

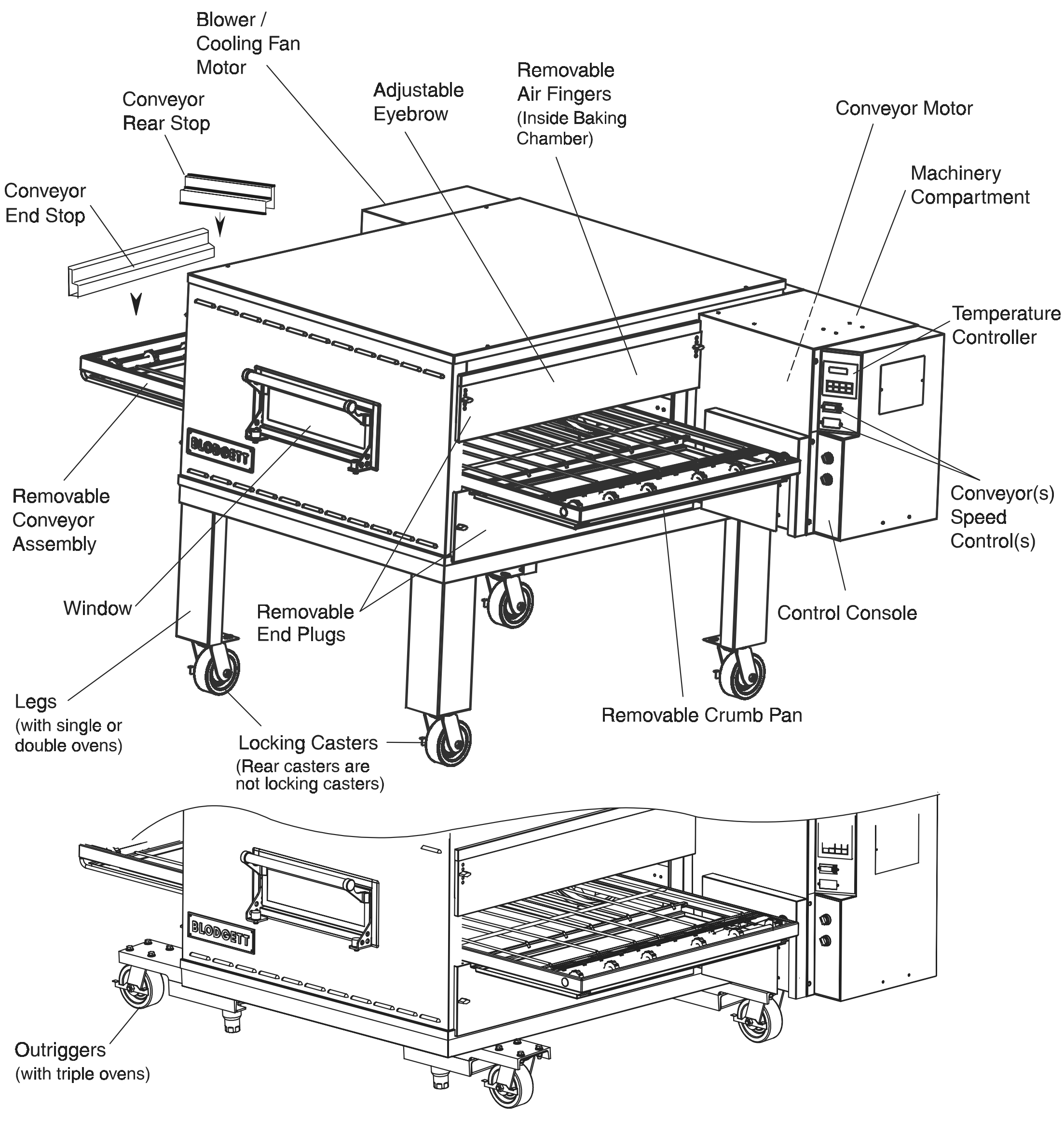


Figure 4-3.

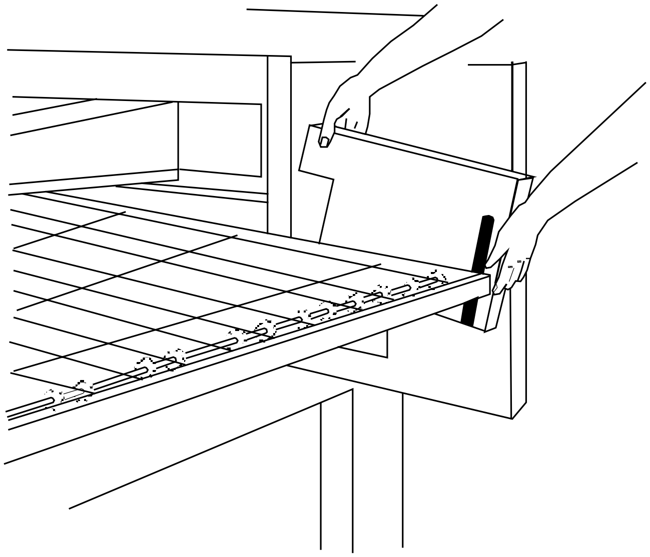


Figure 4-4.

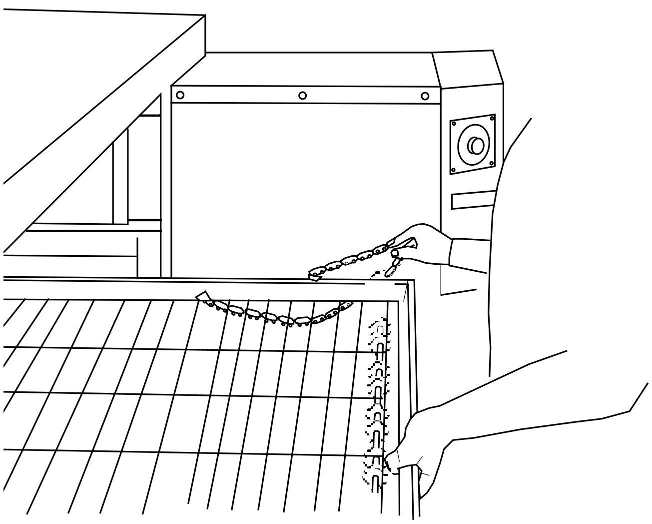


Figure 4-5.

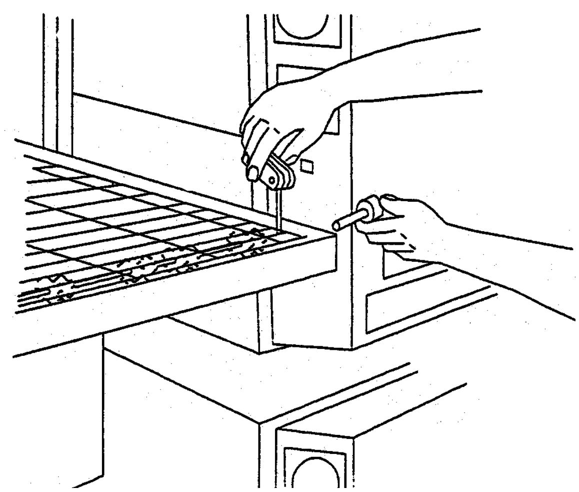


Figure 4-6.

4. Remove conveyor drive chain cover as shown.

5. Remove tension from drive chain by lifting and pushing the conveyor slightly into the oven. Remove drive chain from conveyor drive sprocket as shown.

NOTE: The split belt conveyor assembly can only be removed from the drive end of the oven.

6. Begin sliding conveyor out of the oven as shown.

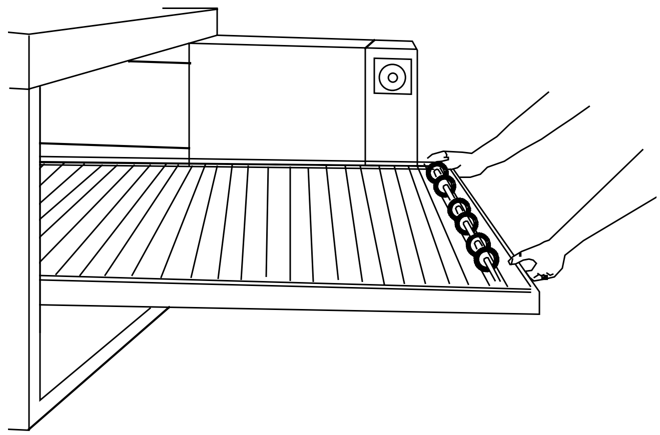


Figure 4-7.

7. Continue sliding the conveyor completely out of the oven, fold it in half and then place it to the side for cleaning. Be careful not to bump drive sprocket while handling conveyor or damage may result to drive shaft.

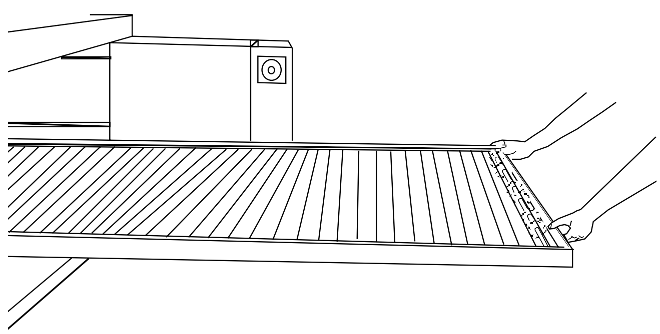


Figure 4-8.

CAUTION

Be careful not to bump the drive sprocket while handling the conveyor, to avoid damaging the drive shaft.

B. Air Fingers Disassembly For Cleaning

1. As the air fingers are removed use a felt pen to mark all parts of the fingers. This includes the finger manifold, inner plate and the outer plate (refer to Figure 1-9). If a blank or choke plate is used, mark that plate also. Fingers are marked in the order shown; as viewed from the front of the oven. (The marks for an upper oven should be preceded with a "U", example UB1, UT2, etc.)

T1	T2	T3	T4
B1	B2	B3	B4

Standard Fingers

2. Slide blank plates straight out.

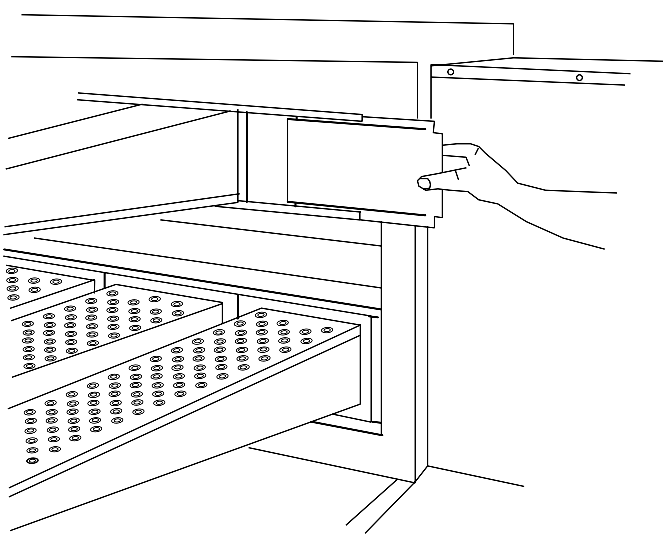


Figure 4-9.

3. Remove air fingers.

NOTE: Some oven users require a custom finger arrangement where the quantity of air fingers may vary.

You can remove top and bottom fingers and blank plates from each or either end. It is highly recommended that each finger be marked before removing so it is placed in exactly the same position when reassembled (refer to step 1).

Remove the air fingers, pull the finger at the back side - pull straight out.

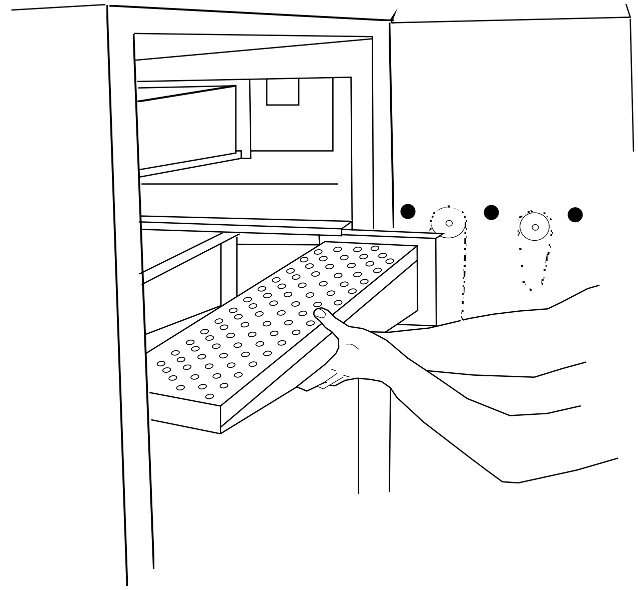


Figure 4-10.

4. With air fingers out, place them in an upright position to remove the outer plate.

5. Gently step o the lip of the finger and pull the outer plate off.

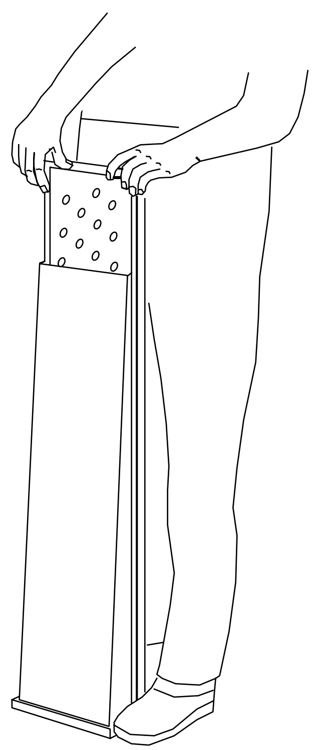


Figure 4-11.

6. To remove the inner plate, pull the plate out and then up.

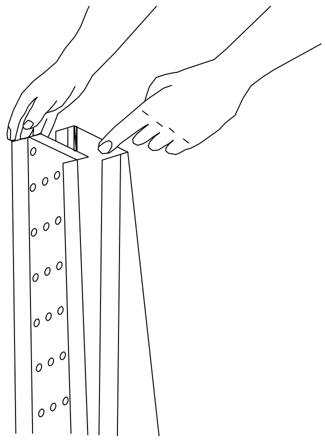


Figure 4-12.

7. The outer finger plate is stainless and may be cleaned by either soaking in a hot, strong detergent solution or using a caustic cleaner. The conveyor belt can also be cleaned in the same way.

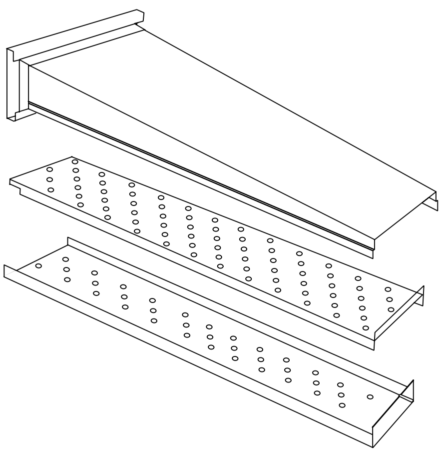


Figure 4-13. Standard Lower Finger

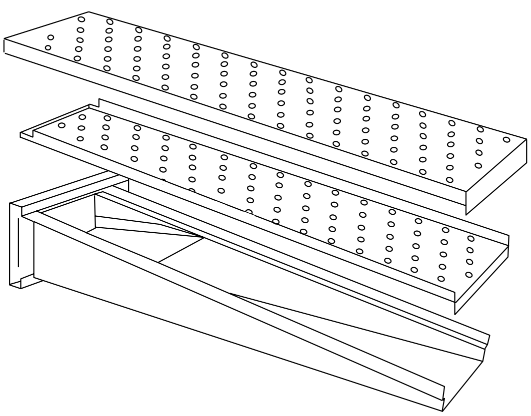


Figure 4-14. Standard Upper Finger

C. Reassembly of Air Fingers

1. Air fingers are made up of one inner plate, one outer plate and the finger housing manifold. Be sure to match up the markings (T1, T2, T3, etc.) on all the parts of the air fingers as you are reassembling.

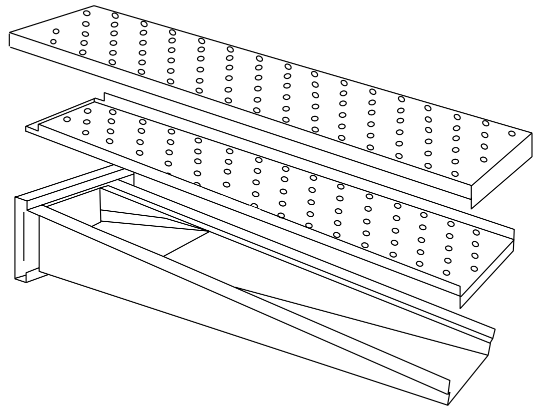


Figure 4-15.

2. Reassemble the inner plate. Keep your fingers clear so you won't pinch them. The inner plate of a finger will only go in one way because of its design.

3. Replace the outer plate by placing your hands flat on the top of the plate and pushing down. Keep your fingers clear so you won't pinch them.

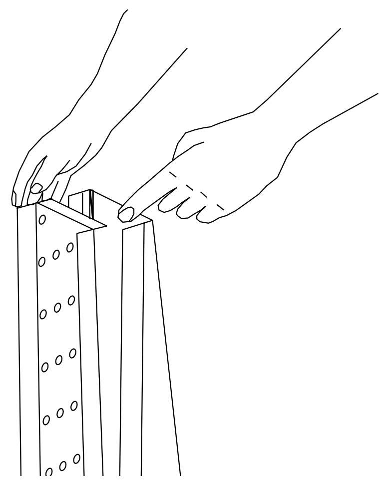


Figure 4-16.

4. Replace the air fingers by pushing in at the back side. Remember to replace them according to the numbers marked on them when they were removed. They must go back in the same way they came out.

IMPORTANT: Only M6 Fingers fit in the bottom row. All M3 and M1 finger cover plates have extended lips at front. This extended lip will not allow these fingers to be installed in the bottom row.

IMPORTANT: When inserting fingers the tab on the outer plate must be in the groove as shown in Figure 4-18. There is a blocking tab on the outside of the groove which will prevent inserting the finger in the groove if the outer plate is moved away from the flange of the finger manifold.

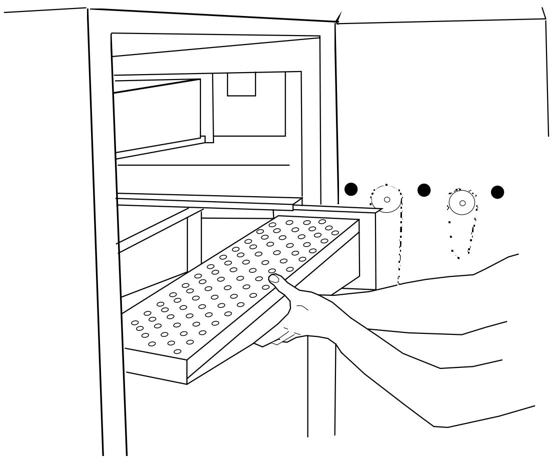


Figure 4-17.

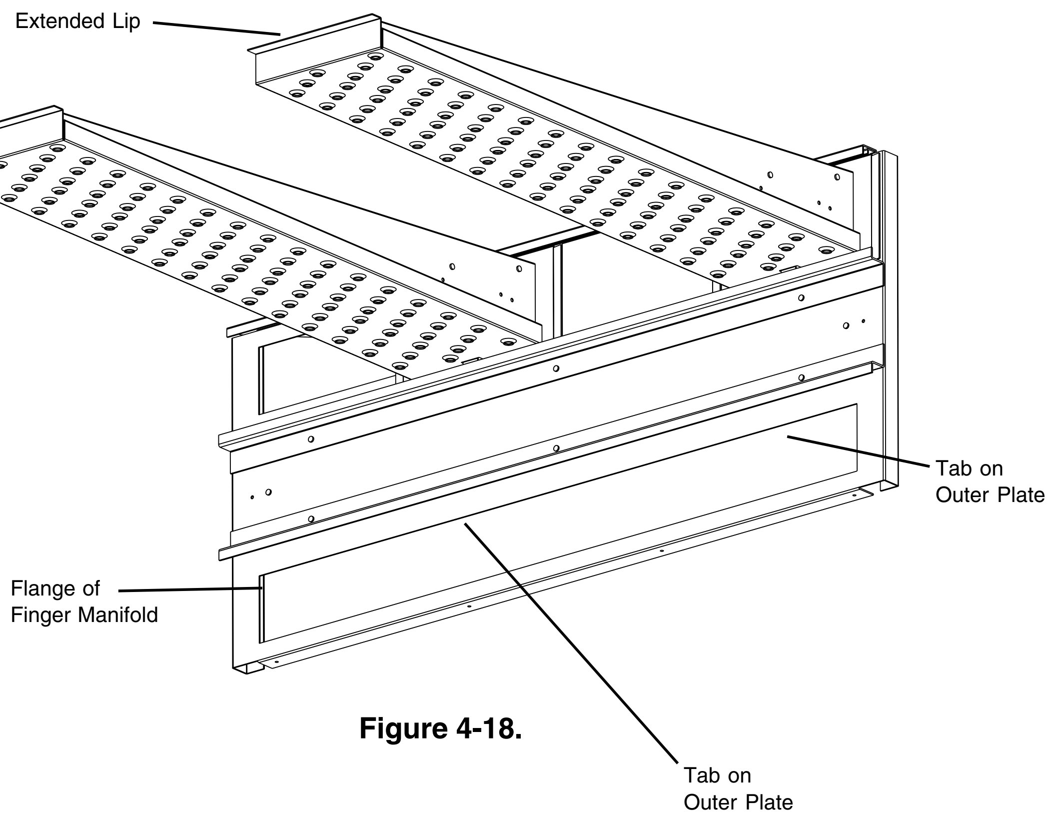
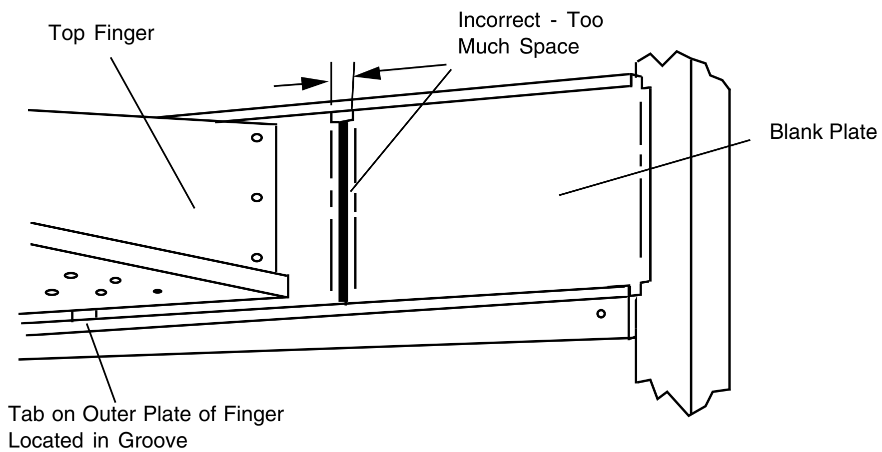
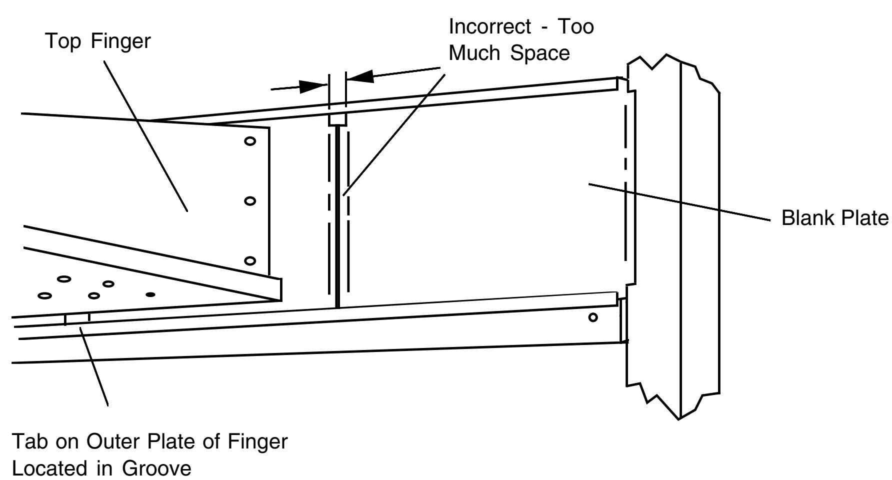


Figure 4-18.

5. Install fingers and blank plates correctly with edges interlocked and no space between edges.





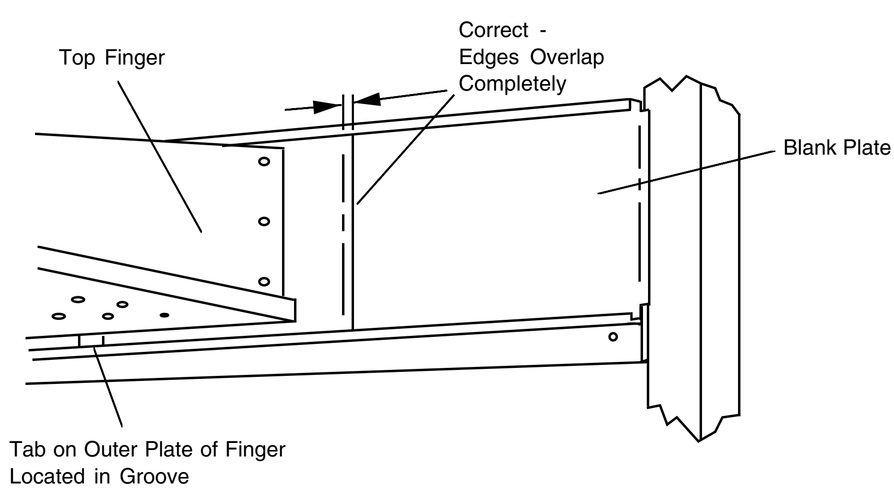


Figure 4-19.

D. Reinstall End Plugs

1. Reinstall lower end plug. Be sure to tighten two wing screws on the end plug.

2. Reinstall conveyor.

3. Reinstall upper end plug. Be sure to tighten two wing screws on the end plug.

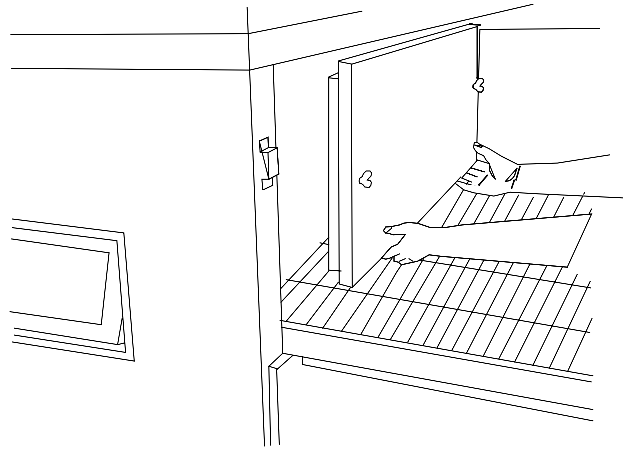


Figure 4-20.

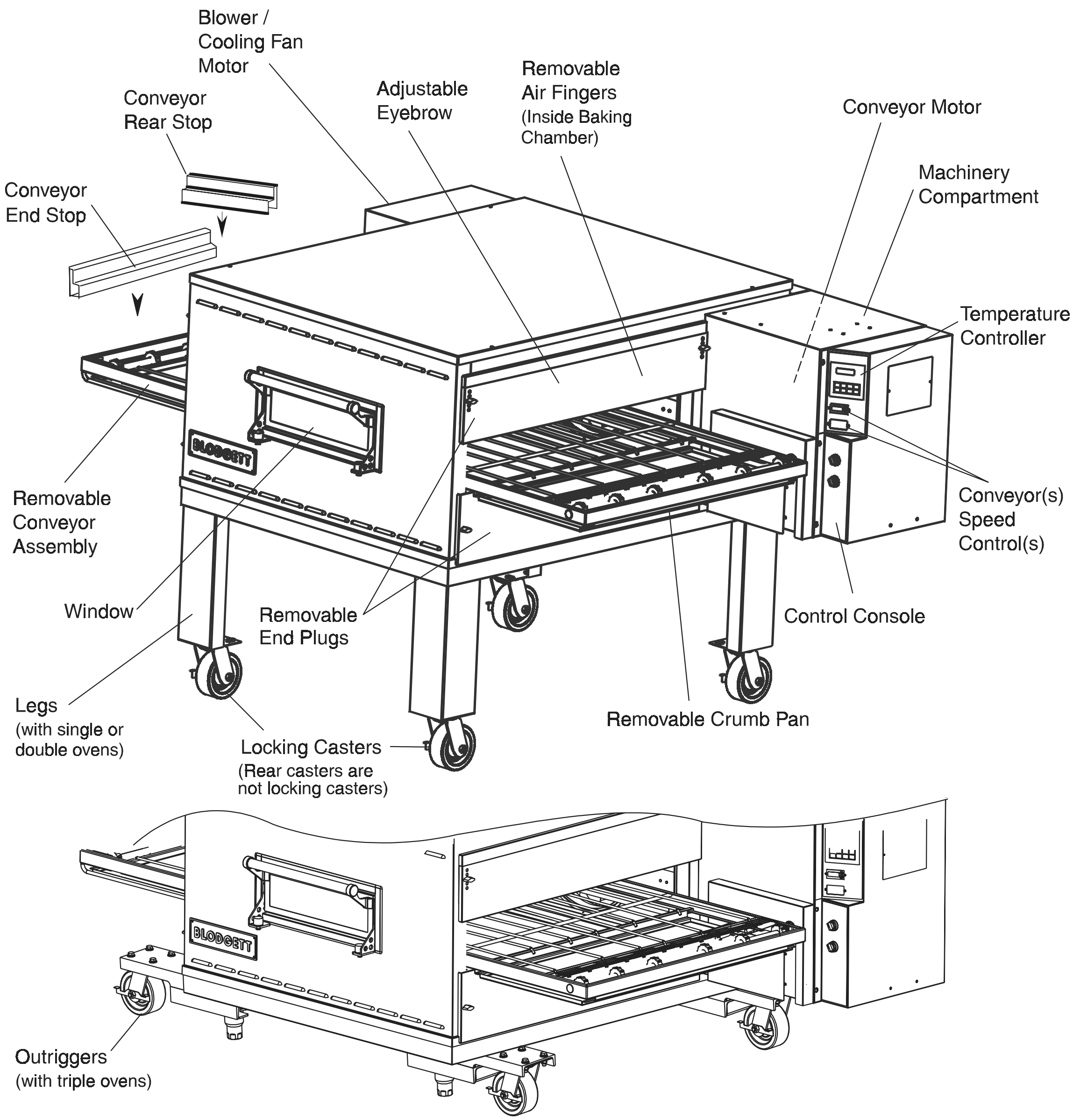


Figure 4-21.

E. Conveyor Reassembly Into Oven

1. Lift conveyor and position it in oven as shown.

NOTE: Conveyor assembly may be inserted into either end of oven. If it is to be installed from the non-drive end of the oven the drive sprocket assembly must be removed as shown in conveyor disassembly section.

NOTE: Split belt conveyors can only be inserted from the drive end of the oven.

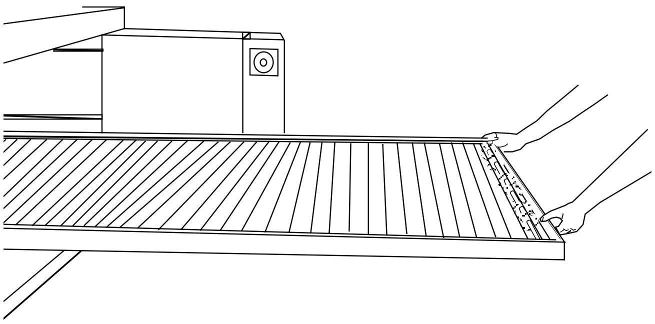


Figure 4-22.

2. Reinstall the conveyor rear stop. Reinstall the conveyor end stop.

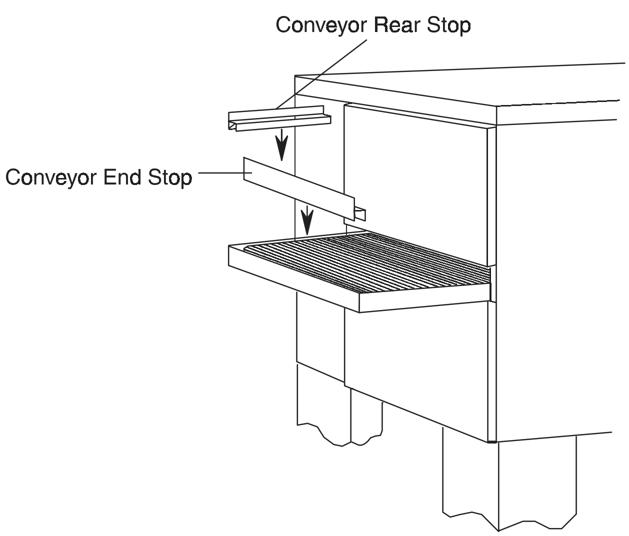


Figure 4-23.

F. Checking Conveyor Belt Tension

> **WARNING**
>
> Oven conveyor belt must be cool when adjusting belt. Do not adjust belt if HOT.

1. With the conveyor assembly in the oven, stand at one end of conveyor and check tension by lifting the conveyor belt at the center of the oven chamber opening. The belt should not lift higher that 3″ to 4″ (75mm to 102mm).

2. Adjust conveyor belt tension screws (located on left end of oven) for the 3″ to 4″ (75mm to 102mm) deflection as shown in Figure 4-26. If there is proper tension, proceed to “J. Attaching Drive Chain”. If belt is still too loose, continue to step 3 below.

3. If conveyor belt is still not under proper tension, an entire link must be removed. Use the following procedure “H. Conveyor Belt Link Removal” to remove a link. If conveyor belt is under proper tension proceed directly to “J. Attaching Drive Chain”.

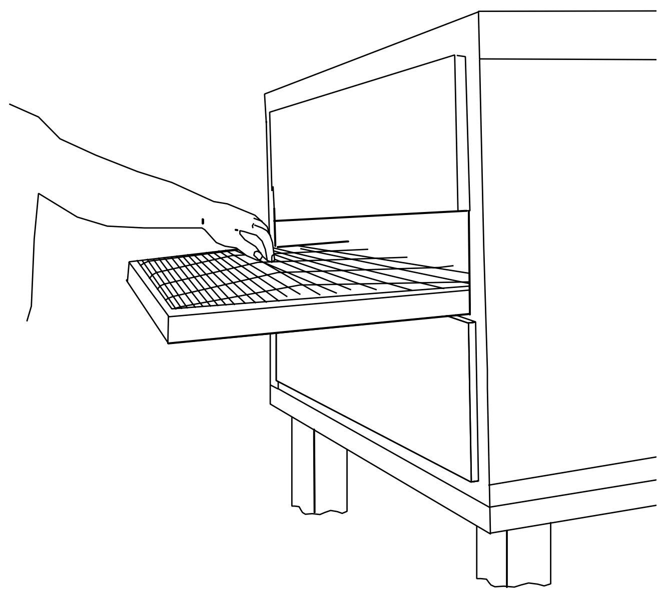


Figure 4-24.

G. Conveyor Belt Link Removal

1. Using long nose pliers, an entire link can be removed with the conveyor assembly either in or out of the oven. Position master links at end of conveyor as shown in Figure 4-25.

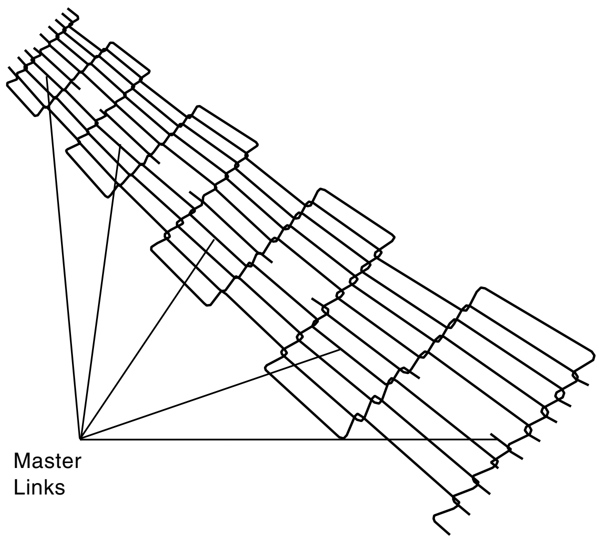


Figure 4-25.

2. Using long nose pliers, unhook master links at left end of conveyor as shown in Figure 4-26.

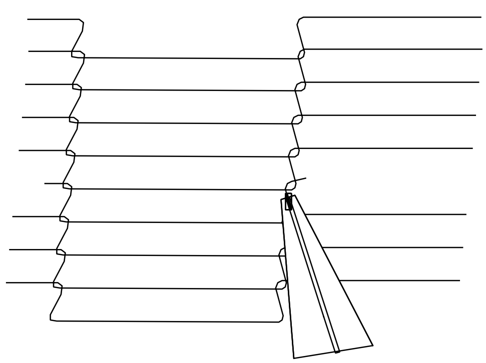


Figure 4-26.

3. Remove the outside master links on the right and left sides of the conveyor belt as shown in Figure 4-27.

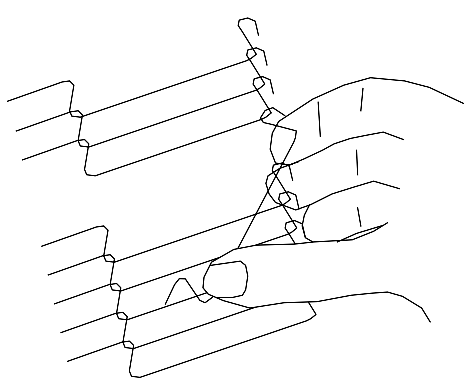


Figure 4-27.

4. Unhook the link to be removed.

5. Pull up on the belt link section and remove. Do not discard the link removed as it may be used for making spare master links.

NOTE: If a section of the conveyor belt is being replaced it should be done now. Remove the links that need replacing and use the section of conveyor belt furnished in your installation kit to replace them.

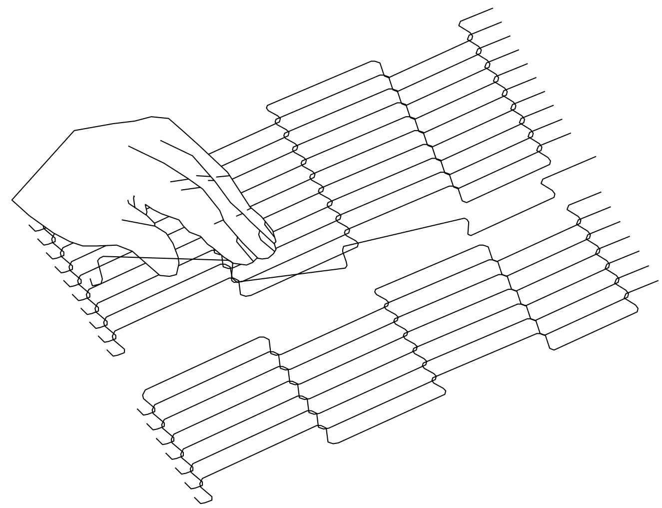


Figure 4-28.

NOTE: Before connecting the inside master links, notice that these links have a correct position (Figure 4-29). The link at the right is in the correct (horns up) position for inserting into the conveyor belt. The horns facing down are in the incorrect position.

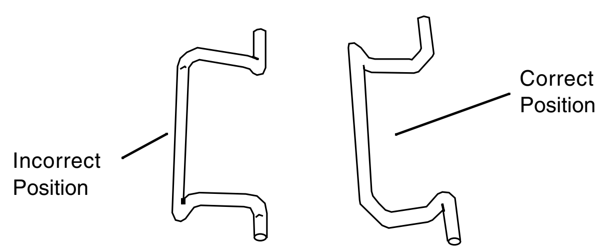


Figure 4-29.

6. Reconnect the inside master links (Figure 4-30.)

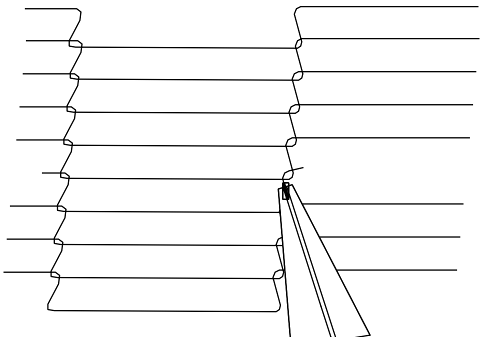


Figure 4-30.

NOTE: The outside master links have right and left sides to them. The right edge master link has an open hook facing you as shown in Figure 4-31. This will match up with the outer edges of the conveyor belt. Remember this hook travels backwards on the conveyor.

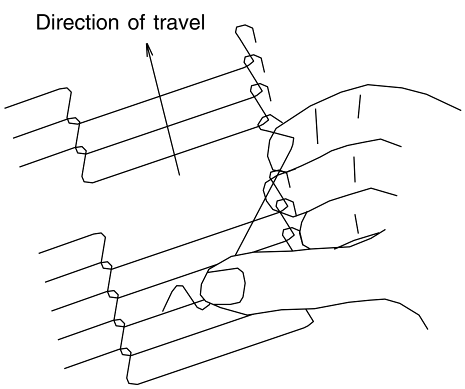


Figure 4-31.

7. Reconnect the outside master links.
8. Replace all parts removed from the oven.

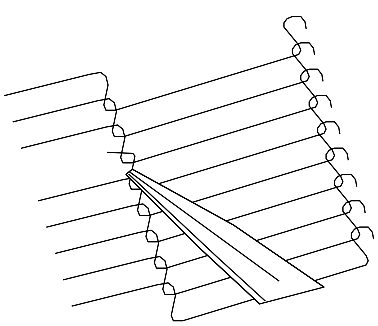


Figure 4-32.

H. Replacing Conveyor Belt

If a section of the conveyor belt needs replacing it can be done with the conveyor assembly either in or out of the oven. The section of the conveyor belt furnished with the oven in the installation kit may then be used to replace a section. Follow the preceding procedure "H. Conveyor belt link removal" which outlines the disassembly procedure.

I. Attaching Drive Chain

1. If drive sprocket assembly was removed reassemble it into the conveyor drive shaft. Be sure flat on end of drive shaft aligns with set screw in conveyor shaft collar. Once in place tighten 3/32″ set screw.

2. Lift conveyor and install drive chain to conveyor drive sprocket and motor sprocket.

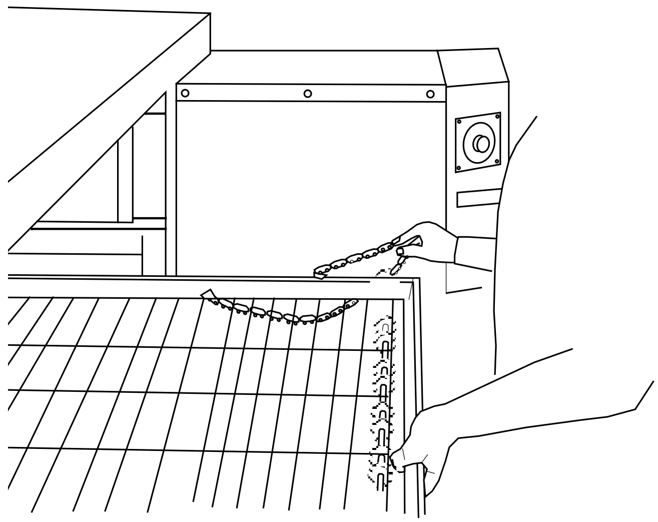


Figure 4-33.

3. The angle plate located on the underside of the conveyor must be against the lower end plug. This is true on both sides of oven.

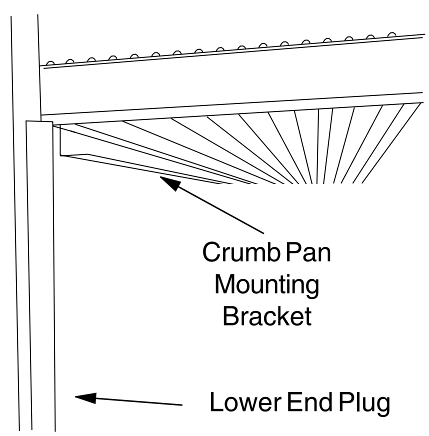


Figure 4-34.

4. Reassemble conveyor drive chain cover and then reassemble the bottom cover to the drive chain cover.

Install both upper end plugs.

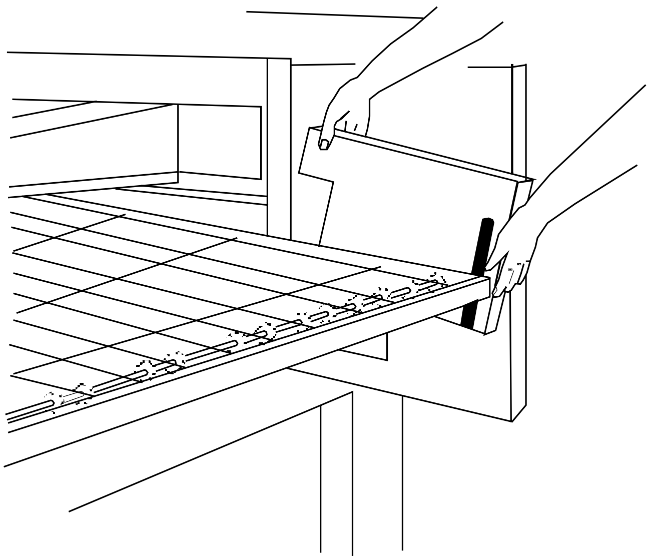


Figure 4-35.

III. MAINTENANCE - EVERY 3 MONTHS

> **WARNING**
>
> Shut OFF all electrical power and lock/tag out the switch before attempting maintenance work.
>
> Shut OFF gas supply to oven.

NOTE: It is recommended that the 3-month maintenance be performed by an authorized Middleby Marshall technician.

A. Cleaning the Blower/Fan Motor

To gain access to the blower/fan motor, open the control cabinet door by removing the three screws. Clean the motor, burner blower motor, the conveyor drive motor and the surrounding area, using either compressed air or CO_2. Thoroughly blow out the motor compartment and vents inside the motor (Figure 4-36). Failure to do this can cause premature failure of blower fan motor.

> **CAUTION**
>
> Not cleaning the blower/fan motor properly can cause premature failure.

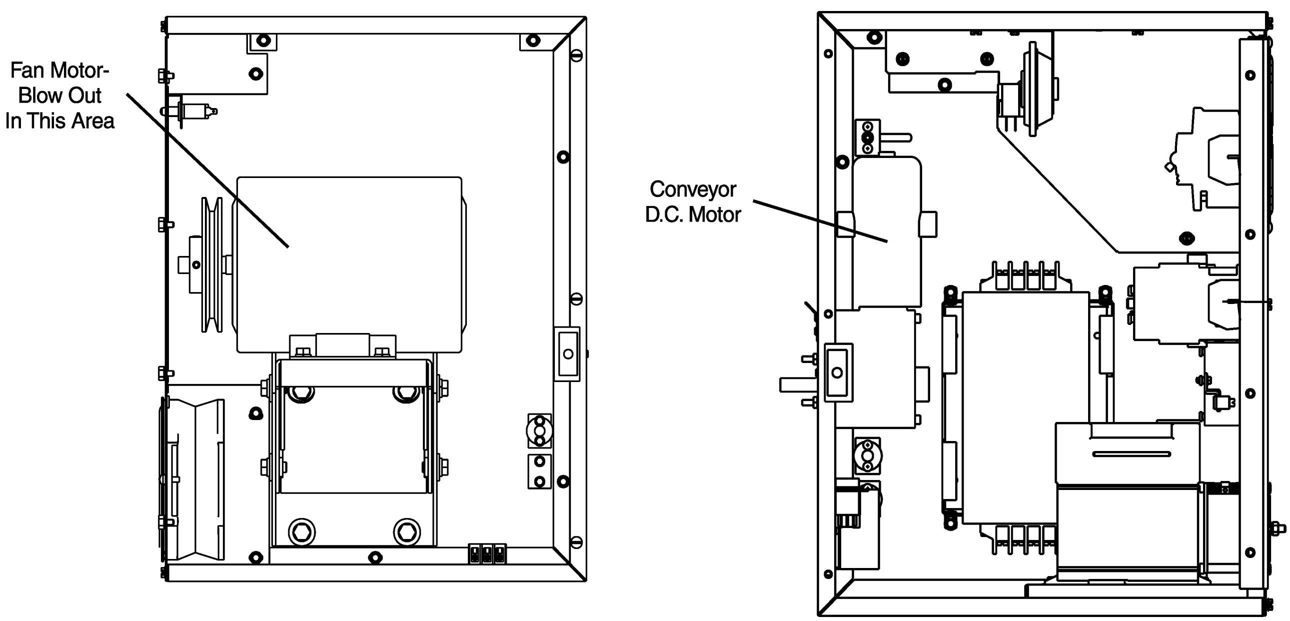


Figure 4-36.

B. Electrical Terminals

Open the control cabinet door by removing the three screws from the control cabinet door. Tighten all electrical control terminal screws including the electrical contactor terminal screws as shown in Figure 4-37.

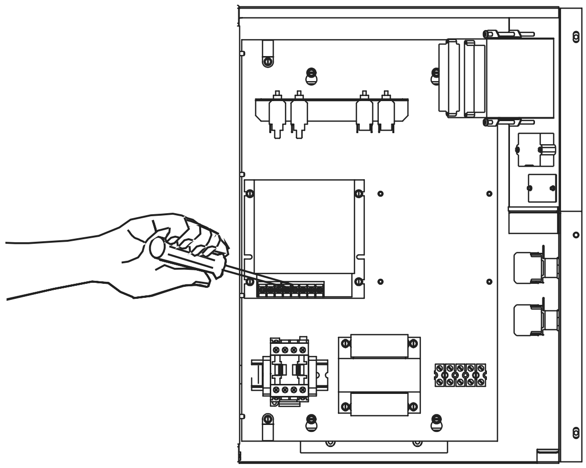


Figure 4-37.

C. Ventilation

Check that the air circulation throughout the oven is not blocked and is working properly.

D. Checking the Blower/Fan Belt

1. Check the main blower/fan belt for proper tension and wear. To gain access,loosen the six screws (Figure 4-38) of the rear shroud and lift shroud cover up and off.

2. The fan belt should deflect no less than 1″ (25mm) at the center (Figure 4-39) and have no cracks or excessive wear.

> **CAUTION**
>
> Overtightening the belt will cause premature bearing failure and possible vibration problems. A spare belt is located inside the control compartment on the rear wall.

3. When replacing the belt, loosen the tension adjustment bolts (Figure 4-40) on the motor mounting bracket. Next, pull back on the motor. Retighten adjustment bolts. Do not overtighten because the fan bearings may be damaged.

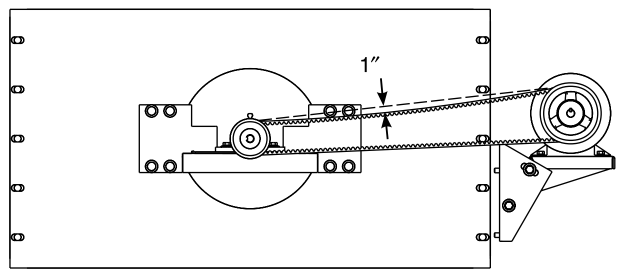


Figure 4-39.

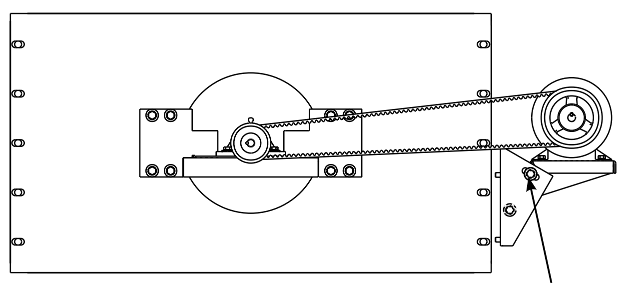


Figure 4-40.

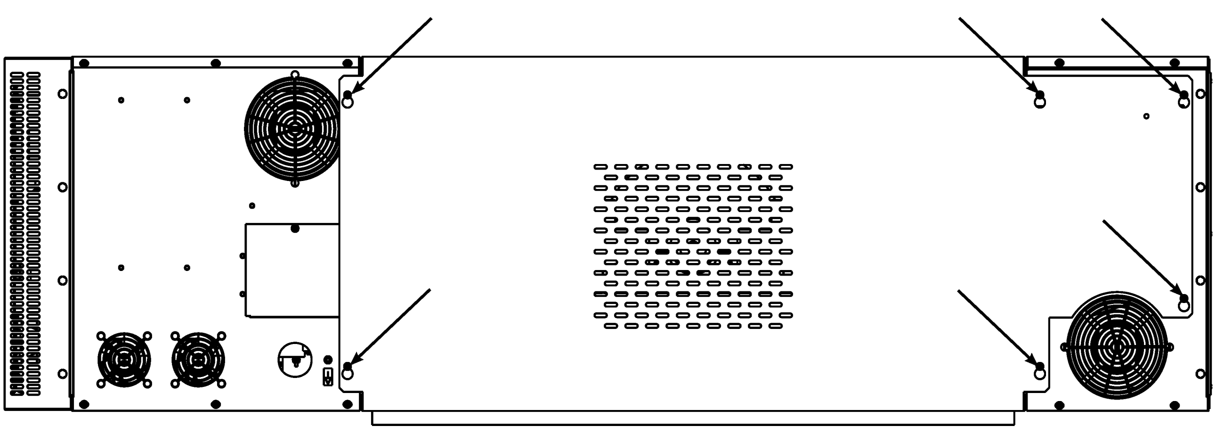


Figure 4-38.

E. Blower Fan Shaft Bearing Lubrication

> **CAUTION**
>
> Over-greasing damages the bearing seals and accelerates grease loss, which shortens bearing life. Wipe off any excess grease on and around the bearing. Reinstall the rear shroud to allow the oven to operate

Grease the two (2) main blower fan shaft bearings (Figure 4-41), using a special grease (MM P/N 17110-0015 lithium-base, high-temperature grease). ONLY ONE STROKE of a grease gun is required for each bearing.

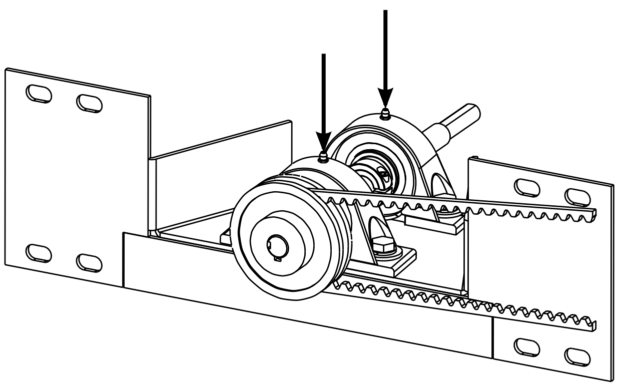


Figure 4-41.

Upon completing the fan belt check (or replacement) and the bearing lubrication, reinstall the rear shroud, fastening it with six screws of the rear shroud.

F. Split-belt Conveyor Shaft Cleaning

It is very important that the split-belt conveyor drive and idler shafts are removed from the conveyor frame for cleaning and lubrication.

> **CAUTION**
>
> **Use a turbine oil or light machine oil. DO NOT USE WD40 or similar product. These oils evaporate and cause the shafts to seize.**

1. Perform the conveyor removal steps described in Monthly Maintenance, paragraph "A". After the conveyor is removed, lay it on a flat surface.

2. Remove the two conveyor belts by disassembling the conveyor master links, as described in Monthly Maintenance, paragraph "H". Then, remove the two conveyor belts by rolling them up.

3. Remove the conveyor adjustment bolts to allow the idler brackets to swing free.

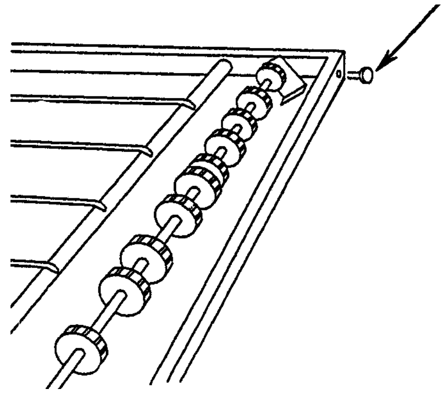


Figure 4-42.

4. Drop the idler shaft assembly clear of the frame through the front frame slot.

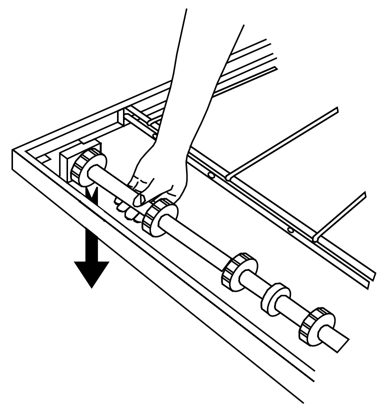


Figure 4-43.

5. Pull the front and rear shafts apart and apply oil to both the extended shaft and the interior of the hollow shaft. Using a rag, wipe oil off parts. Repeat until shafts are clean. Apply more oil to shafts then reassemble.

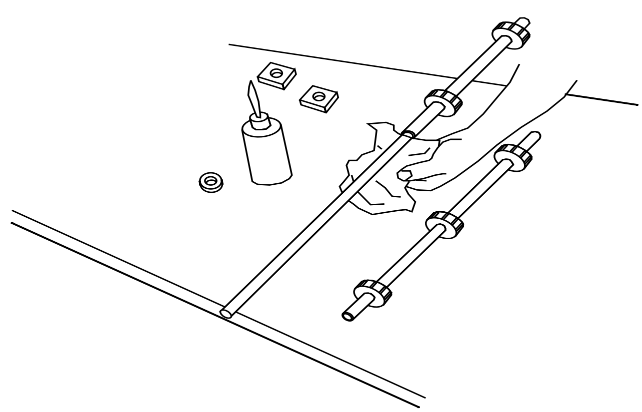


Figure 4-44.

6. Make sure bronze washer is in between the two halves.

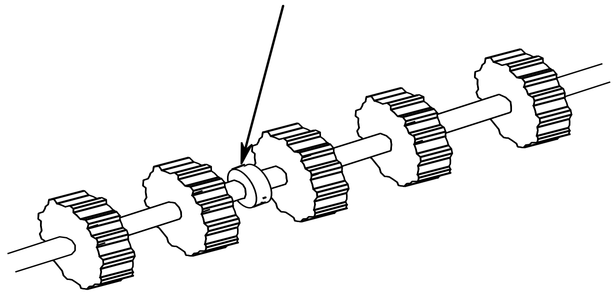


Figure 4-45.

7. Place the idler shaft assembly back into place and reinstall the adjustment screws.

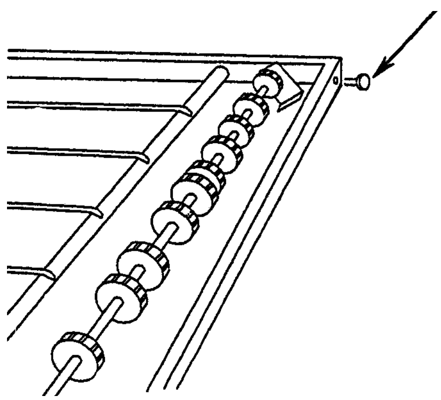


Figure 4-46.

8. Loosen the set screw on each conveyor drive sprocket and remove sprockets.

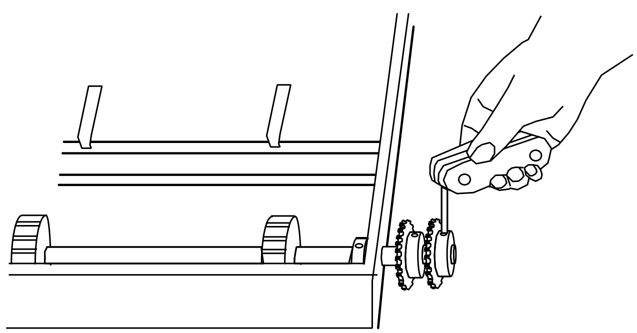


Figure 4-47.

9. Loosen the split locking collar.

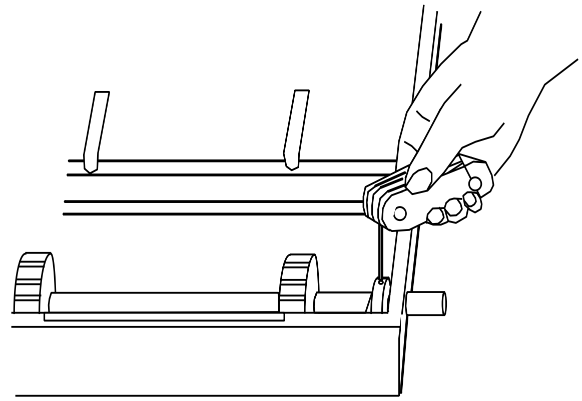


Figure 4-48.

10. Remove drive shafts by sliding to right then lifting the left side. Follow cleaning and lubricating procedures outlined in Steps 4-6.

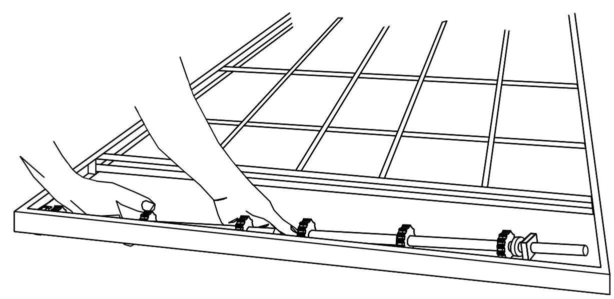


Figure 4-49.

11. Reassemble conveyor drive shafts into frame, making sure nylon spacer is in place.

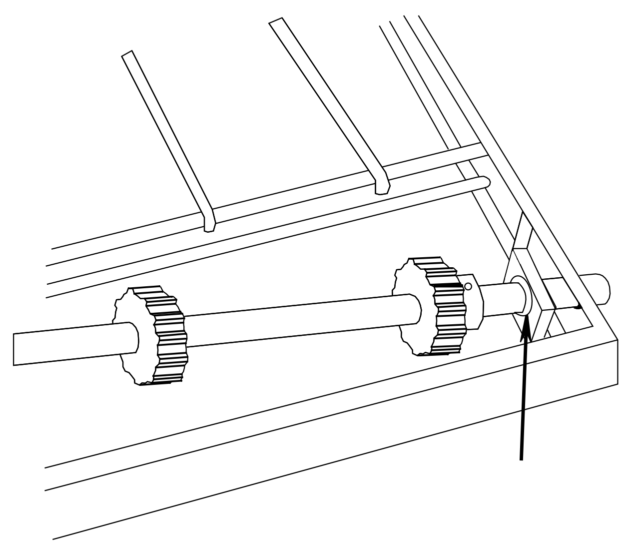


Figure 4-50.

12. Slide shaft assembly to right side, holding assembly in place. Slide split locking collar to the left side and tighten.

13. Slide rear conveyor drive sprocket onto shaft. Tighten the set screw of this drive sprocket until it extends into the hole of the hollow shaft. It **should NOT** touch the inner, solid shaft. Check to see that only the rear shaft moves when the sprocket is turned. If both shafts move, you have tightened the set screw too tight. Loosen the set screw until only the rear shaft moves when the sprocket is turning.

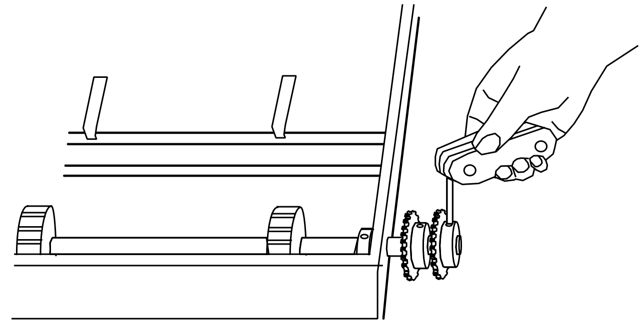


Figure 4-51.

14. Insert adaptor bushing into remaining drive sprocket then place onto shaft. Make sure nylon spacer is in place. Tighten set screw making sure screw goes through slot in adaptor bushing and locks onto shaft.

15. Thread conveyor belts back onto frame making sure the links will be traveling in the proper direction.

16. Follow conveyor reassembly instructions in Monthly Maintenance Paragraph "F".

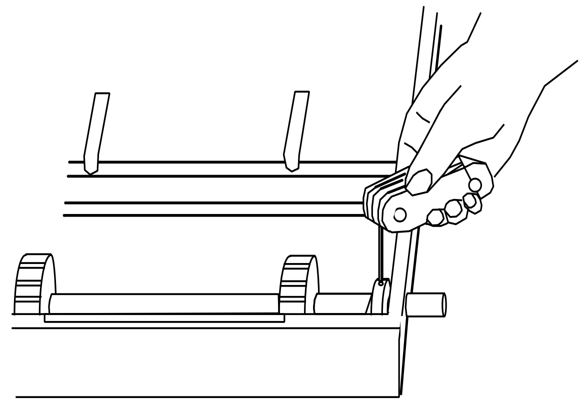


Figure 4-52.

NOTE: It is recommended that the 6 Month Maintenance schedule be performed by a Blodgett authorized service technician.

IV. MAINTENANCE - EVERY 6 MONTHS

A. Check brushes on D.C. conveyor motor, when worn to less than 1/10″ (2.4mm), replace the brushes.

B. Clean and inspect the burner nozzle and electrode assembly. Also check your oven venting system.

C. Check conveyor shaft bushings and spacers. Replace them if they are worn. See Figure 6-5, Conveyor Exploded Drawing, items 15, 30 and 31 or Figure 6-6, Split Belt Conveyor, items 19, 23, 31, 35 and 36.

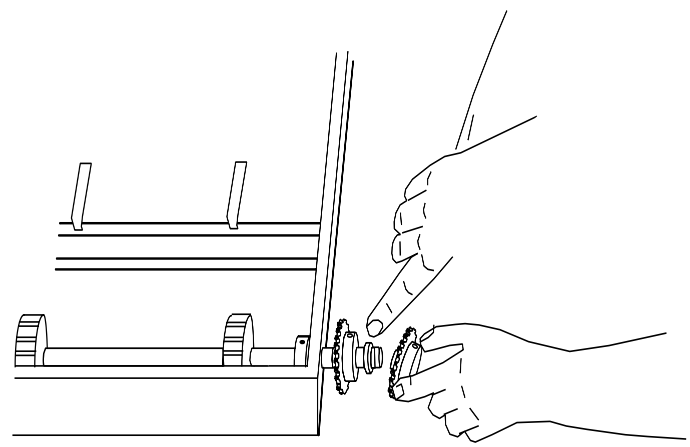


Figure 4-53.

IMPORTANT NOTICES:

- Installation of replacement parts requiring access to the interior of the oven is permitted only by an authorized service technician.
- If there are any problems with the operation of the oven, the authorized service technician must be called.
- It is suggested to obtain a service contract with a manufacturer's authorized service technician.

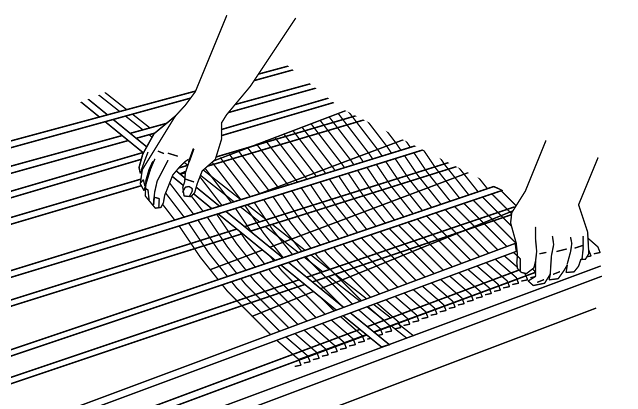


Figure 4-54.

KEY SPARE PARTS KIT

An oven can be purchased with a Key Spare Parts Kit (Figure 4-56). (The kit can be purchased when the oven is ordered, or later, from a Blodgett Authorized Parts Distributor). The kit contains many of the crucial parts that can reduce serious downtime and loss of production, if a failure occurs.

Replacement parts for this kit can be purchased from your Blodgett Authorized Parts Distributor.

BE3240-SERIES ELECTRIC OVEN KEY SPARE PARTS KIT, p/n 36805 (Figure 4-56)

ITEM	PART NO.	ENGLISH DESCRIPTION	QUANTITY
1	47321	Kit, Temperature Control On/Off Pid	1
2	44687	Blower/Fan Motor	1
3	47797	Conveyor Drive Motor	1
4	37337	Conveyor Speed Control	1
5	33812-3	Thermocouple	1
6	44914	Controller, Power 208V/240V	1
6	44568	Controller, Power 380V/480V	1
7	27375-0001	Heater Element, 208V	1
7	27375-0002	Heater Element, 240V	1
7	27375-0003	Heater Element, 380V	1
7	27375-0004	Heater Element, 480V	1

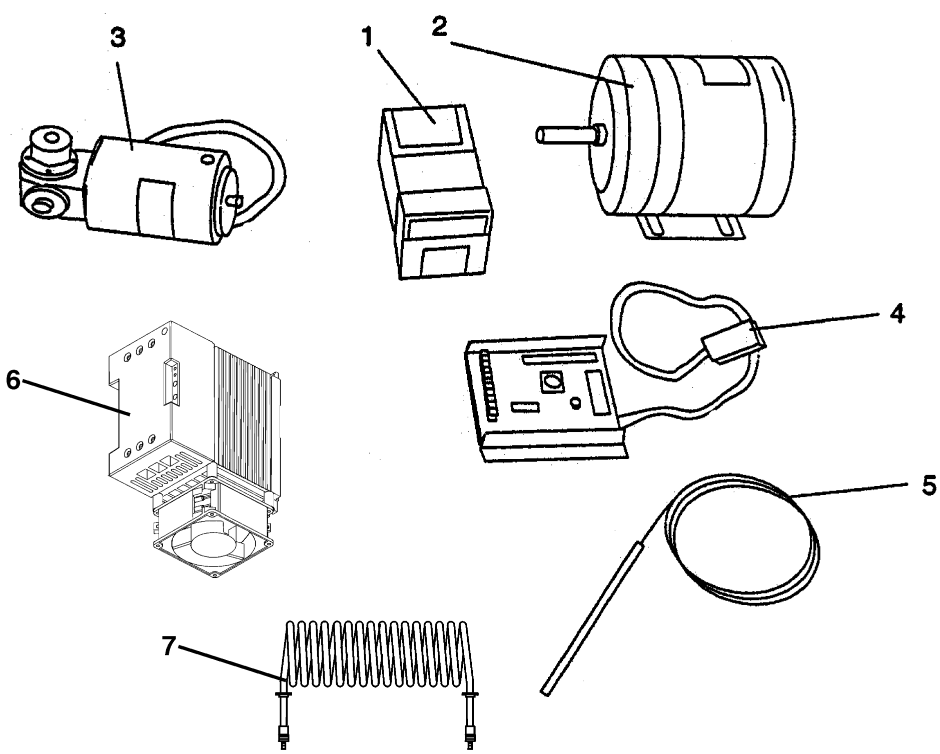


Figure 4-54. Key Spare Parts Kit, p/n 36805

SECTION 5
TROUBLESHOOTING

PROBLEM: PRODUCTS ARE OVERCOOKED OR UNDERCOOKED

- Check for correct setting of conveyor speed control.
  - Set the conveyor speed control at correct setting.
- Check for correct setting on tempera-ture controller.
  - Turn temperature control to correct setting.

Then:

1. Verify the food preparation process.
2. If products still cook incorrectly, call your Blodgett Service Agency.

PROBLEM: OVEN DOES NOT HEAT

1. Check to see if the BLOWER/HEAT switch is in the “ON” or “I” position.
2. If oven does not heat, call your Blodgett Service Agency.

PROBLEM: BLOWER MOTOR IS RUNNING, YET LITTLE OR NO AIR BLOWS FROM AIR FINGERS

1. Air fingers reassembled incorrectly, after cleaning.
2. Assemble air fingers correctly, after cleaning. Refer to Section 4 procedure, or call your Blodgett Service Agency.

PROBLEM: OVEN BLOWER AND CONVEYOR OPER-ATE, YET THE OVEN IS NOT HEATING

1. Reset the temperature controller to a new setting (above 200°F), after turning the BLOWER/HEAT switch to off for 30 seconds.
2. Start the oven again. If the oven still does not heat, call your Blodgett Service Agency.

PROBLEM: CONVEYOR WILL NOT HOLD PROPER SPEED OR WILL NOT RUN AT ALL

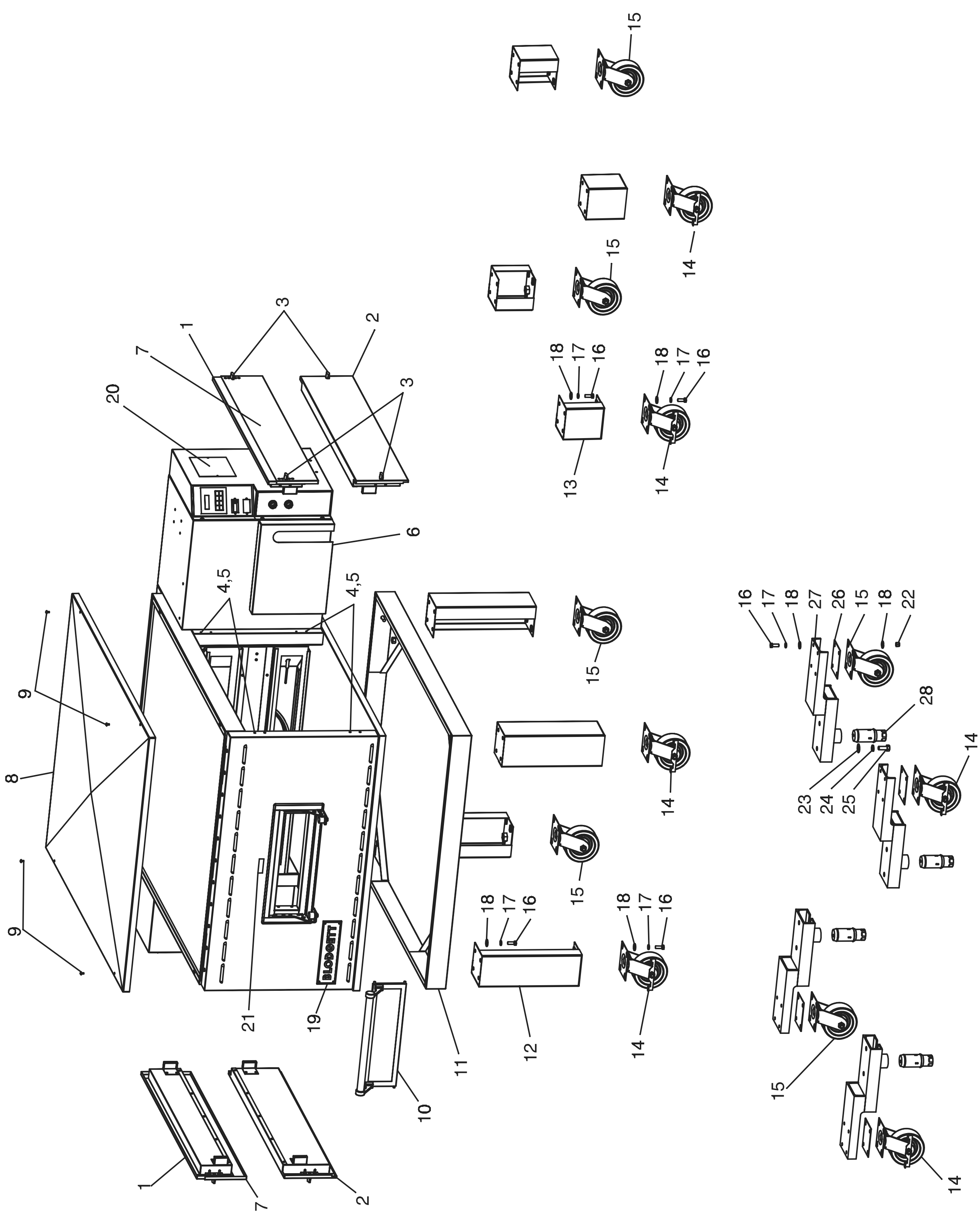
1. Check whether the conveyor is jammed on something in oven.
2. Check for proper tension of conveyor drive chain and conveyor belt. Refer to Section 4 for correct procedure.
3. Check that the conveyor drive sprocket is tight.
4. If conveyor still does not run correctly, contact your Blodgett Service Agency.

PROBLEM: OVEN DOES NOT TURN ON WHEN ITS SWITCHES ARE TURNED ON

1. Check that all electric supply switches are set to the “ON” or “I” position. Then, start the oven.
2. If oven still will not start, contact your Blodgett Service Agency.

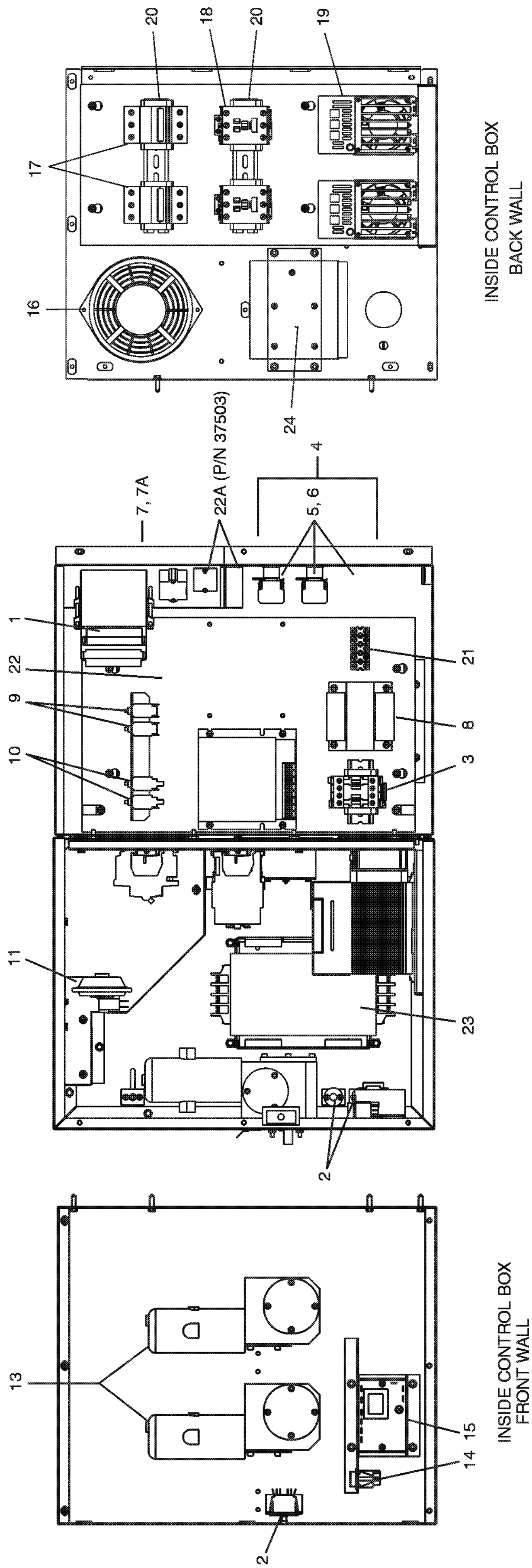
NOTES

SECTION 6 - PARTS LIST



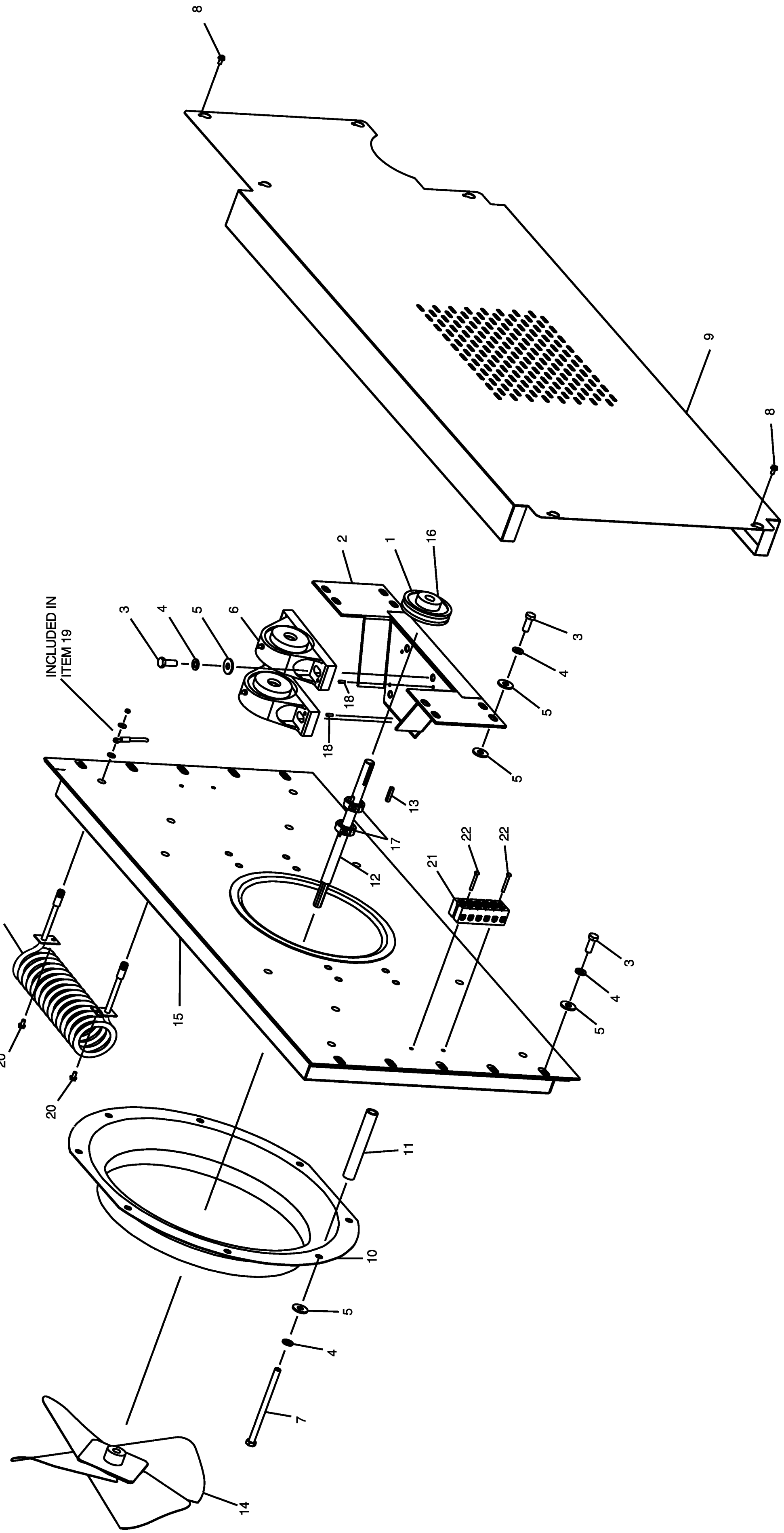
OVEN PANELS, WINDOW AND LEGS

ITEM	QTY.	P/N	DESCRIPTION
1	2	49947	UPPER END PLUG ASSY
2	2	49946	LOWER END PLUG ASSY
3	8	36452	WINGNUT, PLASTIC 1/4-20
4	8	45449	END PLUG MOUNTING PLATE ASSY (NOT SHOWN)
5	16	21296-0005	SCR, HEX WSHHD12-14X3/4",SS BSD (NOT SHOWN)
6	1	49905	CONVEYOR CHAIN COVER
7	2	50637	EYEBROW
8	1	33486	COVER, TOP 304 PANEL
9	4	21256-0008	SCR, 10-32X3/8 18-8 SL TRUSS
10	1	51054	GLASS DOOR ASSY
11	1	37900-0025	COMPLETE BASE WLDMT
12	4	37900-0024	LEG/TOP PLATE WLDMT
13	4	37900-0102	LEG, 6" H/TOP PLATE WLDMT
14	2	22290-0009	CASTER, SWVL W/BRAKE FLAT PLATE
15	2	22290-0010	CASTER, SWVL FLAT PLATE
16	A/R	220373	SCR,HEX HEAD 3/8-16X1 SST
17	A/R	21422-0001	WASHER, LOCK SPLIT 3/8
18	A/R	21416-0001	FLAT WASHER, 3/8 ZP
19	1	57399	NAME PLATE BLODGETT
20	1	M3540	INSTRUCTION LABEL
21	1	22500-0041	LABEL "CAUTION HOT SURFACE"
22	16	21172-0004	NUT, 3/8-16 NYLON INSULATED L/N ZINC
23	8	21416-0003	FLAT WASHER 1/2" 18-8
24	8	21426-0004	LOCK WASHER 1/2" 18-8
25	8	21216-0018	SCREW, HHCS 1/2-13X1-1/4 18-8
26	4	45205	QUAD CASTER SPACER
27	4	45209	QUAD OUTRIGGER WLDMT
28	4	45206	QUAD ADJUSTMENT FOOT INSERT


INSIDE CONTROL BOX
BACK WALL
22A (P/N 37503)
7, 7A
5, 6
INSIDE CONTROL BOX
FRONT WALL

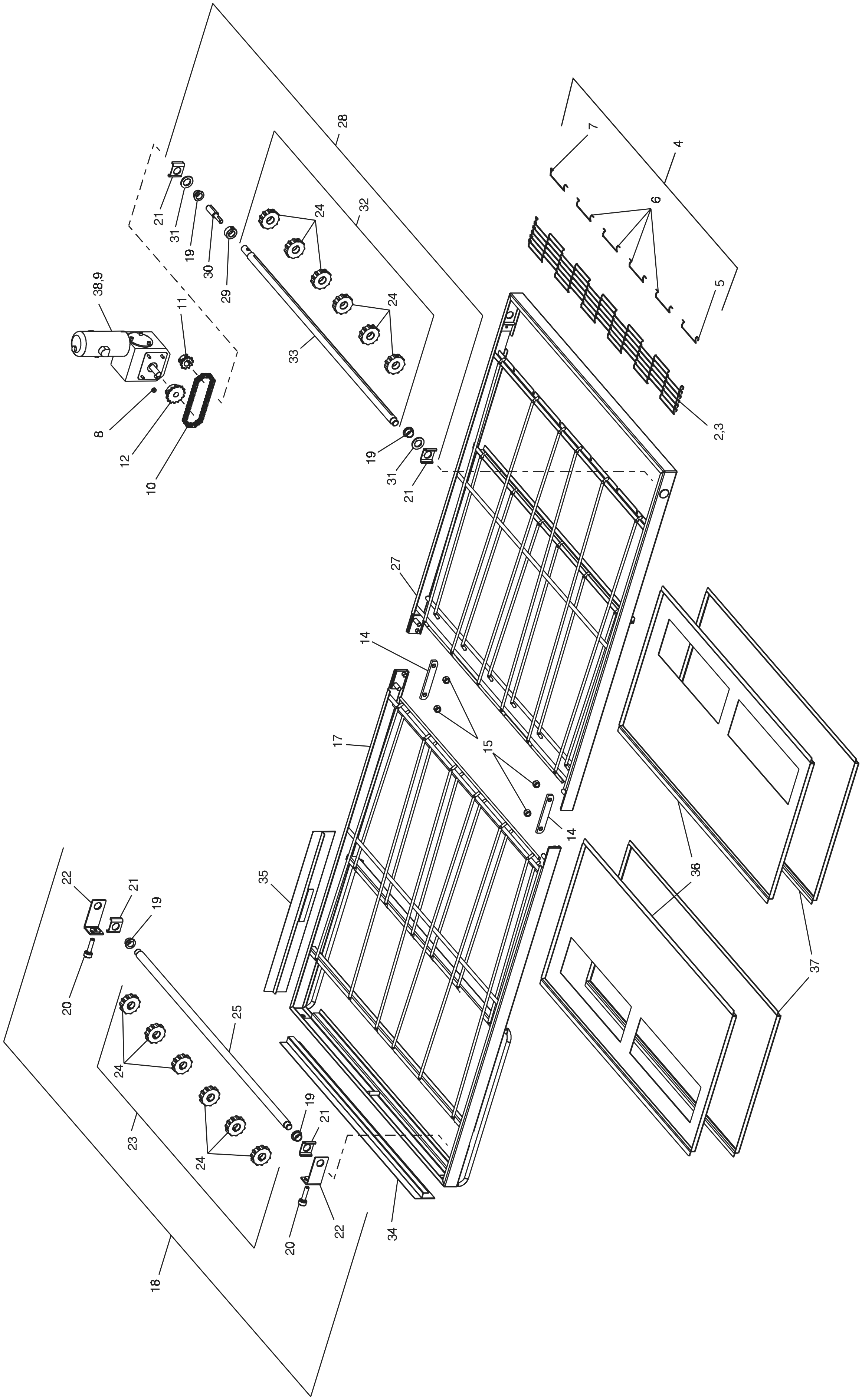
CONTROL PANEL

ITEM	QTY.	P/N	DESCRIPTION
1	1	47321	COMBO BURST CONTROL, 4-20Ma
2	1	33812-3	THERMOCOUPLE, TYPE J SHIELDED 9.50 × 60″
3	1	28041-0011	CONTACTOR, 208/240V
4	2	46521	KIT, BLOWER SWITCH CONTAINS ((1) 44697, (1) 44696)
5	3	44697	CONTACT BLOCK
6	2	44696	SELECTOR SWITCH
7	1	57603	LABEL, CTRL DOOR RT LWR BE3240
7A	1	57423	LABEL, CTRL DOOR RT UPR BE3240
8	1	31504	TRANSFORMER, 230V (P)/120V (S) 200VA
9	2	45036	CIRCUIT BREAKER, 240V 3A
10	2	46831	CIRCUIT BREAKER, 240V 8A
11	1	50610	AIR SWITCH, 0.16″ WC
12	1	28021-0047	INTERLOCK SWITCH, 10A NO2P
13	A/R	47797	MOTOR, GEAR 1/50HP 1350:1
14	1	35145	SWITCH, PB MOLVENO 250V
15	1	33983	ELECTRIC HI-LIMIT CONTROL, 240V
16	1	36451	COOLING FAN, 230V AC
17	2	45019	BREAKER, CKT 480VAC 63A 3 POLE
18	2	44594	CONTACTOR, 230VAC COIL 85A
19	2	44914	CONTROLLER, PS555EL 208-240V
19	2	44568	CONTROLLER, PS555EL 380-480V
20	10	33363	END, STOP ENTRELEC
21	1	39258	BLOCK, TERMINAL 600V 50A 5 POLE
22	1	37337	CONVEYOR SPEED CONTROL W/DIGITAL SPEED DISPLAY
22A	1	37503	DIGITAL SPEED CONTROL (DISPLAY ONLY)
23	2	45244	FILTER, RFI 50A/440V/3PH/50/60Hz (CE OVENS ONLY)
24	2	27480-0001	BLOCK, POWER DIST 2 POLES 600V (NOT SHOWN)


INCLUDED IN
ITEM 19

BLOWER AND SHROUD

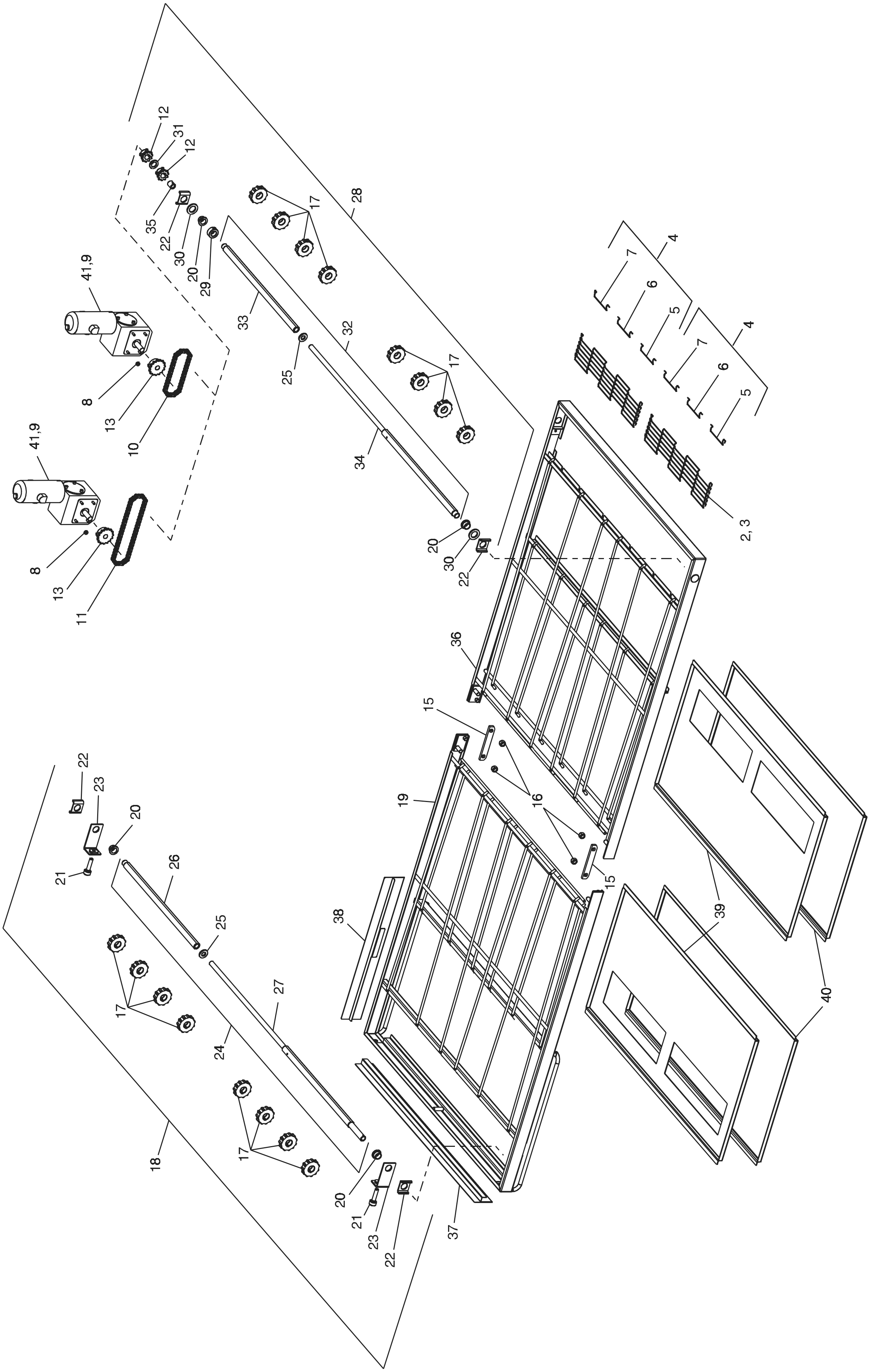
ITEM	QTY.	P/N	DESCRIPTION
1	1	51157	PULLEY, 1GRV 3.0PD AK32H
2	1	48855	WELDMENT, BRG BRACKET PS540G
3	22	220373	SCREW, HH 3/8″ - 16 × 1″ SS T
3A	A/R	17110-0017	NEVER SEIZE LUBRICANT - USED ON ITEMS 3 & 7 APPLIED TO THREADS BEFORE REINSTALLING
4	30	21422-0001	SPLIT LOCK WASHER 3/8″ ZP
5	38	21416-0001	FLAT WASHER 3/8″ SS
6	2	22072-0025	BEARING, PILLOW BLOCK 5/8″
7	2	21326-0002	SCREW, HX HD GRS 3/8″ - 16 × 5-1/2″
8	A/R	2000203	SCREW ,HX W/HD 10 - 32 × 3/8″ ZC
9	1	48872	BACK WALL SHROUD
10	1	48803	AIR INLET RING
11	8	35900-0108	FAN ORIFICE STAND OFF TUBE
12	1	50643	FAN DRIVE SHAFT
13	1	21651-0010	KEY, SQ 3/16″ × 3/16″ × 1.00″ STL
14	1	48862	AXIAL FAN, 14″ DIAMETER
15	1	51110	INR/OTR BACK WELDMENT
16	1	22031-0017	SPECIAL BUSHING, 5/8″ ID - 3/16″ × 3/32″ KEY
17	2	35323	COUPLING, COLLAR SPLIT 5/8″ DIAMETER
18	4	50271	ROLL PIN, PLN 5/32″ × 7/16″
19	6	27375-0001	HEATER, TBLR COIL-208V/4500W
19	6	27375-0002	HEATER, TBLR COIL-240V/4500W
19	6	27375-0003	HEATER, TBLR COIL-380V/4500W
19	6	27375-0004	HEATER, TBLR COIL-480V/4500W
20	12	2000203	SCR, SL HX W/HD MS 10-32 × 3/8″ ZC
21	1	35986	BLOCK, TERM 6-POLE 600V 85A
22	2	15048801	SCR, RHM 8-32 × 1-1/4″ NP


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CONVEYOR

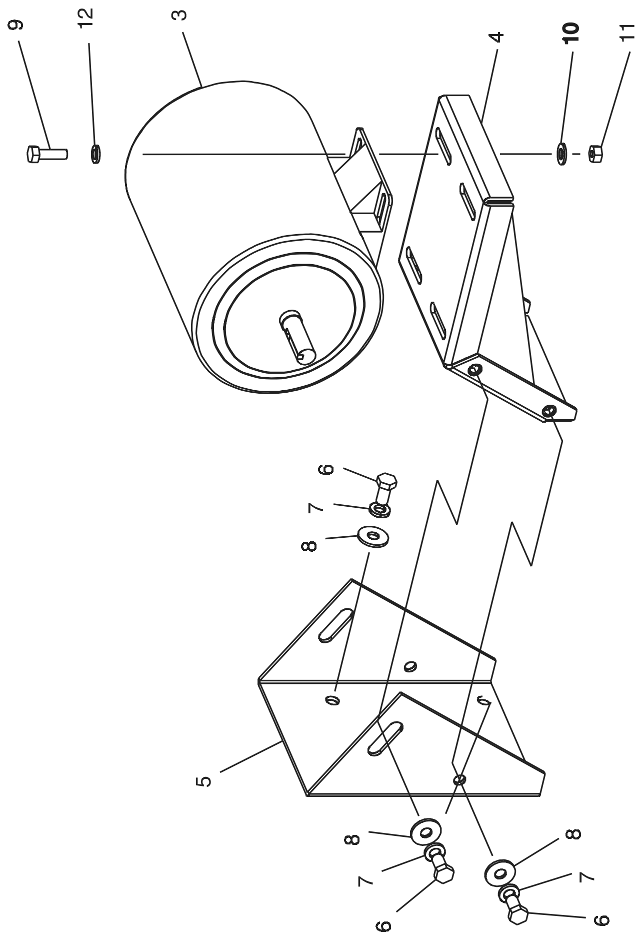
ITEM	QTY.	P/N	DESCRIPTION
1	1	47042	SINGLE CONVEYOR 80″ EXCLUDES ITEMS 7, 8, 9, 12, 36 & 37
2	1	22450-0225	CONVEYOR BELT, 1/2P 32″ × 204″ 2.84/11 S
3	1	33900-0032	CONVEYOR CHAIN, SS WIRE1 FT
4	1	51380	KIT, MASTER LINK, CONTAINS ((1) 33900-0016, (4) 33900-0017, (1) 33900-0018)
5	1	33900-0016	MASTER LINK - LEFT 1/2P × 32″
6	1	33900-0017	MASTER LINK - MIDDLE 1/2P × 32″
7	1	33900-0018	MASTER LINK - RIGHT 1/2P × 32″
8	4	2001371	NUT, KEPS 10-32, ZP
9	1	50265	CONVEYOR CONTROL PICKUP KIT(NOT SHOWN)
10	1	49400-0050	ROLLER CHAIN ASSEMBLY, SIB
11	1	22151-0002	SPROCKET, #35-10T-5/8″
12	1	22151-0003	SPROCKET, #35-15T-1/2″
13	1	49400-0074	COMPLETE FOLDING CONVEYOR ASSY INCLUDES ITEMS 14, 15, 16 & 26
14	2	35900-0398	PIVOT PLATE - CONVEYOR FRAME
15	4	21176-0002	LOCKNUT, HEX SS 3/8″-16
16	1	49400-0072	CONVEYOR FRAME ASSEMBLY - IDLER INCLUDES ITEMS 17 & 18
17	1	37900-0071	COMPLETE CONVEYOR FRAME WELDMENT - IDLER
18	1	49400-0013	IDLER SIDE ASSEMBLY - CONVEYOR INCLUDES ITEMS 19, 20, 21, 22 & 23

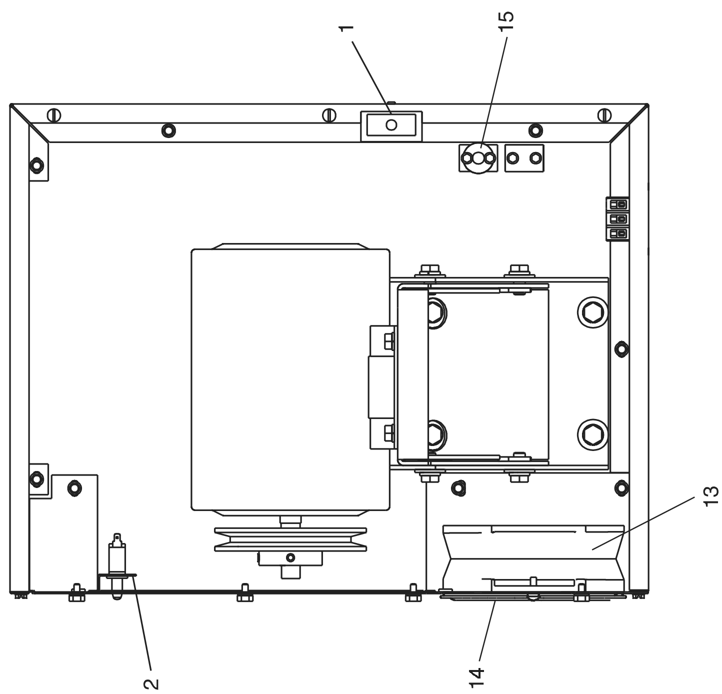
ITEM	QTY.	P/N	DESCRIPTION
19	2	22034-0003	BUSHING, FLANGE 3/4″ OD, × 5/8″ ID N/D
20	2	35000-1008	SCREW, ADJ - CONVEYOR IDLER
21	2	35900-0020	CONVEYOR SHAFT SUPPORT BRACKET
22	2	37000-0413	IDLER WELDMENT
23	1	49400-0014	IDLER SHAFT ASSEMBLY INCLUDES ITEMS 24 & 25
24	12	22229-0003	CONVEYOR DRIVE SPROCKET 2.0″ OD W/SCREW
25	1	35000-1011	IDLER SHAFT - CONVEYOR
26	1	49400-0073	CONVEYOR FRAME ASSEMBLY - DRIVE INCLUDES ITEMS 27 & 28
27	1	37900-0075	COMPLETE CONVEYOR FRAME WELDMENT - DRIVE
28	1	49400-0011	DRIVE SIDE ASSEMBLY - CONVEYOR INCLUDES ITEMS 19, 21, 29, 30, 31 & 32
29	1	22011-0013	SHAFT COLLAR W/SCREW
30	1	35000-1013	DRIVE SHAFT ADAPTER
31	2	35000-1080	NYLON SPACER 3/4″ ID 1-1/4″ OD
32	1	49400-0012	DRIVE SHAFT ASSEMBLY INCLUDES ITEMS 24 & 33
33	1	35000-1012	DRIVE SHAFT - CONVEYOR
34	1	35000-1103	STOP, SIDE END CONVEYOR EXT
35	1	35900-0148	STOP, BACK SIDE CONVEYOR EXT
36	2	35900-0255	CRUMB PAN W/SLOTS - CONVEYOR
37	2	35900-0305	CRUMB PAN - CONVEYOR
38	1	47797	MOTOR, GEAR 1/50HP 1350:1


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SPLIT BELT CONVEYOR

ITEM	QTY.	P/N	DESCRIPTION
1	1	50646	SPLIT CONVEYOR 50/50 80″ EXCLUDES ITEMS 7, 8, 9, 12, 36 & 37
2	1	22450-0226	CONVEYOR BELT, 1/2P 15″ × 146″ 2.86/5 SP
3	1	33900-0037	CONVEYOR CHAIN, SS WIRE1 FT
4	1	51382	KIT, MASTER LINK, CONTAINS ((1) 33900-0016, (1) 33900-0017, (1) 33900-0018)
5	1	33900-0016	MASTER LINK - LEFT 1/2P × 32″
6	1	33900-0017	MASTER LINK - MIDDLE 1/2P × 32″
7	1	33900-0018	MASTER LINK - RIGHT 1/2P × 32″
8	4	2001371	NUT, KEPS 10-32, ZP
9	2	50265	CONVEYOR CONTROL PICKUP KIT(NOT SHOWN)
10	1	49400-0070	ROLLER CHAIN ASSEMBLY, SPB 15″
11	1	49400-0051	ROLLER CHAIN ASSEMBLY, SPB 26-1/2″
12	1	22159-0003	SPROCKET, #25-20T-5/8″
13	1	22159-0004	SPROCKET, #25-30T-1/2″
14	1	49400-0092	COMPLETE FOLDING CONVEYOR SPB ASSY INCLUDES ITEMS 15, 15, 16, 19 & 36
15	2	35900-0398	PIVOT PLATE - CONVEYOR FRAME
16	4	21176-0002	LOCKNUT, HEX SS 3/8″-16
17	16	22229-0003	CONVEYOR DRIVE SPROCKET 2.0″ OD W/SCREW
18	1	49400-0093	CONVEYOR FRAME ASSEMBLY - IDLER INCLUDES ITEMS 17, 19, 20, 21, 22, 23 & 24
19	1	37900-0071	COMPLETE CONVEYOR FRAME WELDMENT - IDLER
20	2	22034-0003	BUSHING, FLANGE 3/4″ OD, × 5/8″ ID N/D
21	2	35000-1008	SCREW, ADJ - CONVEYOR IDLER
22	2	35900-0020	CONVEYOR SHAFT SUPPORT BRACKET
23	2	37000-0413	IDLER WELDMENT
24	1	35525	IDLER SHAFT ASSEMBLY, SPB INCLUDES ITEMS 25, 26 & 27
25	2	21415-0001	FLAT WASHER, BRONZE
26	1	35000-1535	REAR CONVEYOR IDLER SHAFT, SPB
27	1	42400-0354	FRONT CONVEYOR IDLER SHAFT ASSEMBLY, SPB
28	1	49400-0095	CONVEYOR FRAME-DRIVE ASSY, SPB INCLUDES ITEMS 12, 17, 20, 22, 29, 30, 31, 32, 35 & 36
29	1	22011-0014	SPLIT-SHAFT COLLAR
30	2	35000-1080	NYLON SPACER 3/4″ ID 1-1/4″ OD
31	1	35000-1531	NYLON SPACER
32	1	35524	DRIVE SHAFT ASSEMBLY, SPB INCLUDES ITEMS 25, 33 & 34
33	1	35900-0022	CONN-REAR CONVEYOR DRIVE SHAFT
34	1	49400-0018	FRONT CONVEYOR DRIVE SHAFT ASSY, SPB
35	1	35900-0023	BUSHING, SPROCKET-FRONT DRIVE
36	1	37900-0075	COMPLETE CONVEYOR FRAME-DRIVE WELDMENT
37	1	35000-1103	STOP, SIDE END CONVEYOR EXT
38	1	35900-0148	STOP, BACK SIDE CONVEYOR EXT
39	2	35900-0255	CRUMB PAN W/SLOTS - CONVEYOR
40	2	35900-0305	CRUMB PAN - CONVEYOR
41	2	47797	MOTOR, GEAR 1/50HP 1350:1


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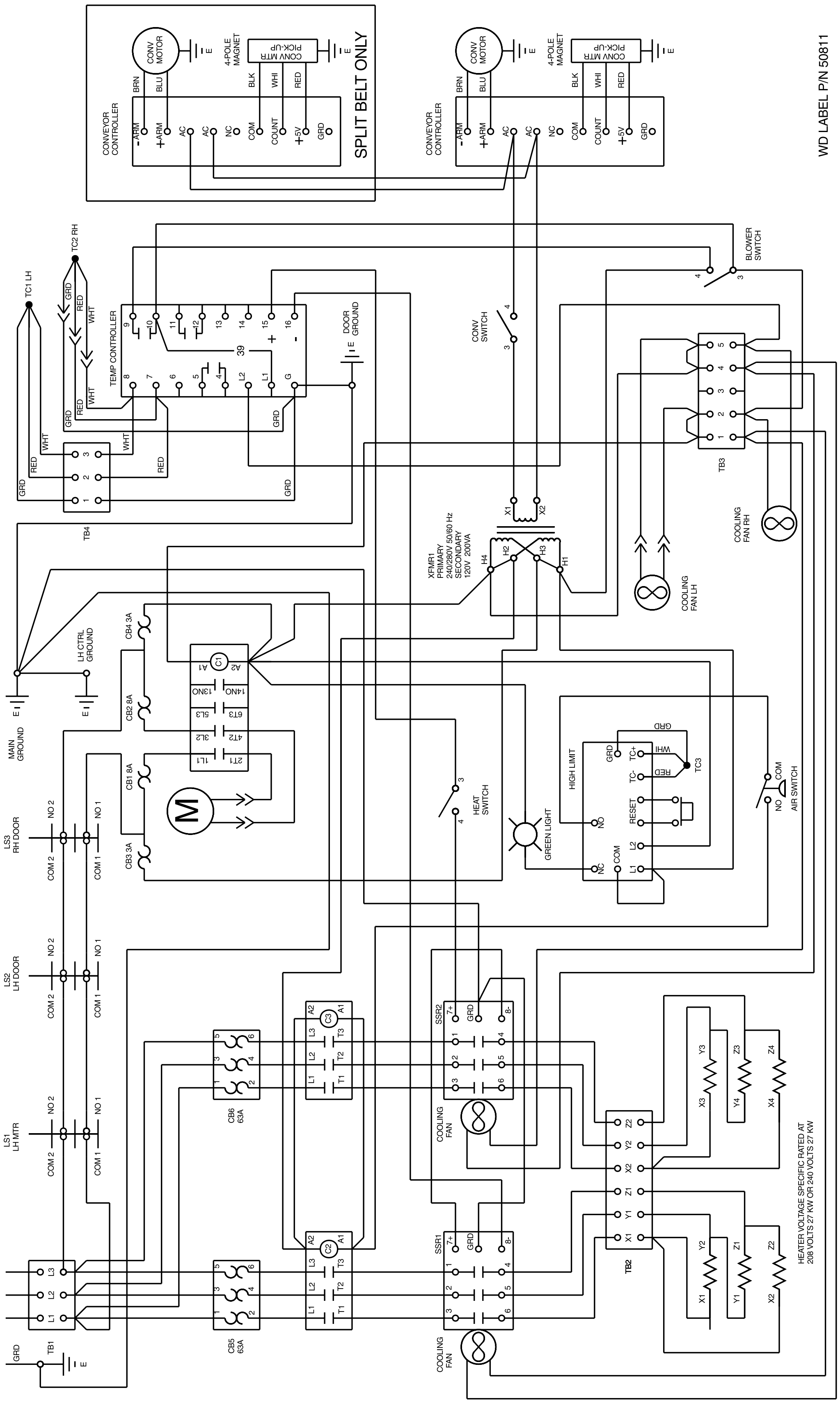

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MACHINERY COMPARTMENT

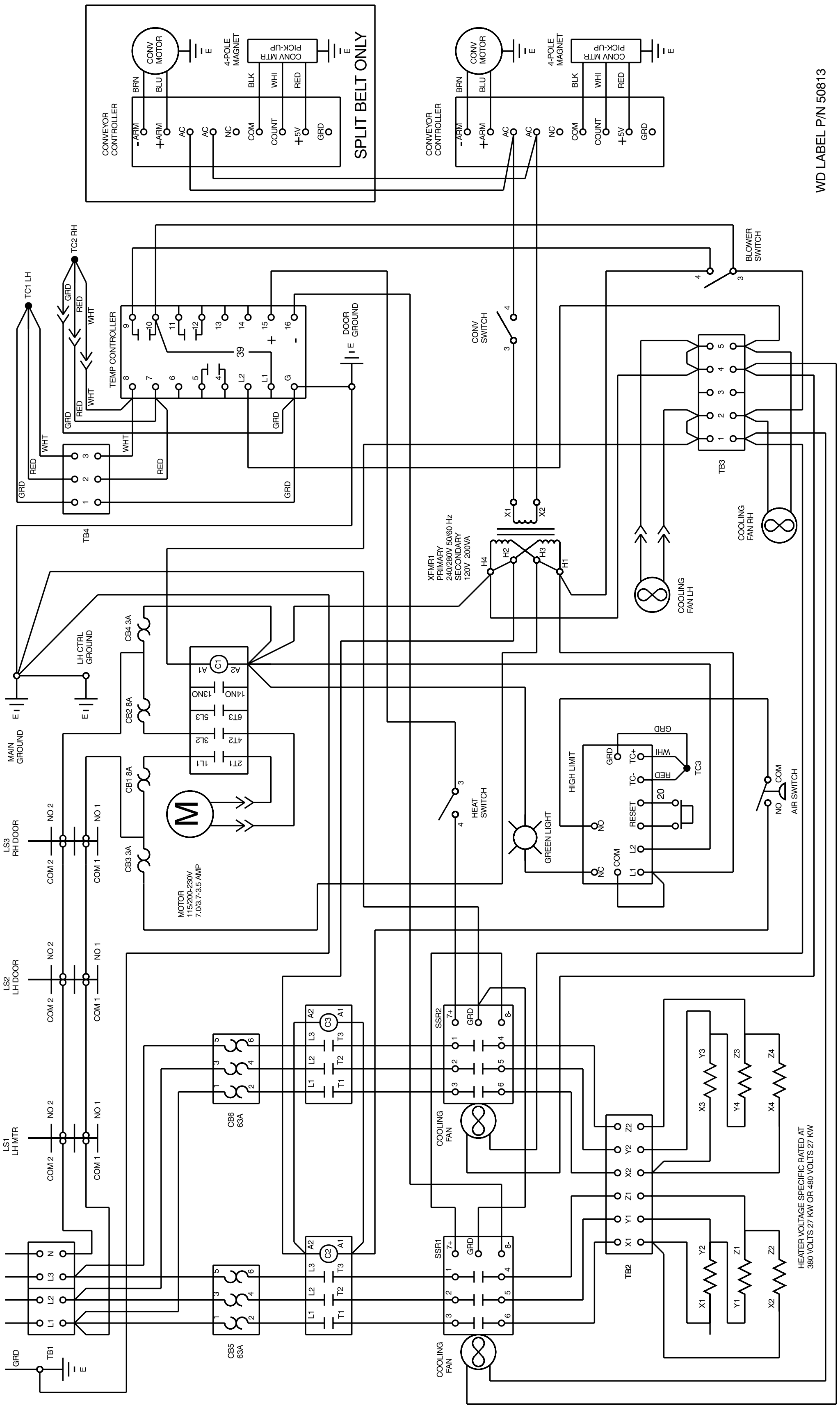
ITEM	QTY.	P/N	DESCRIPTION
1	1	28021-0047	INTERLOCK SWITCH 10A NO2P
2	1	28021-0061	MOMENTARY SWITCH - 10A NO 2 POLE
3	1	44687	MOTOR 1/2 HP
4	1	49953	MOTOR MOUNTING BRACKET WELDMENT
5	1	50449	MOTOR SUPPORT BRACKET
6	8	1513D8805	SCREW, HEX HD 3/8″-16 × 3/4″ - NP
7	8	21422-0001	LOCK WASHER, SPLIT 3/8″ ZP
8	8	21416-0001	FLAT WASHER SS 3/8″
9	4	A3896	MACHINE SCREW, HEX HD 5/16″-18 × 1″ 18-8
10	4	3023A8807	FLAT WASHER 5/16″ SAE NP
11	4	21126-0004	HEX NUT SS 5/16-18
12	4	A3682	LOCK WASHER 5/16″
13	1	36451	COOLING FAN 230V AC
14	1	31497	FINGER COOLING FAN GUARD
15	1	33812-3	THERMOCOUPLE, TYPE “J” SHIELDED 9.50 × 60″

NOTES

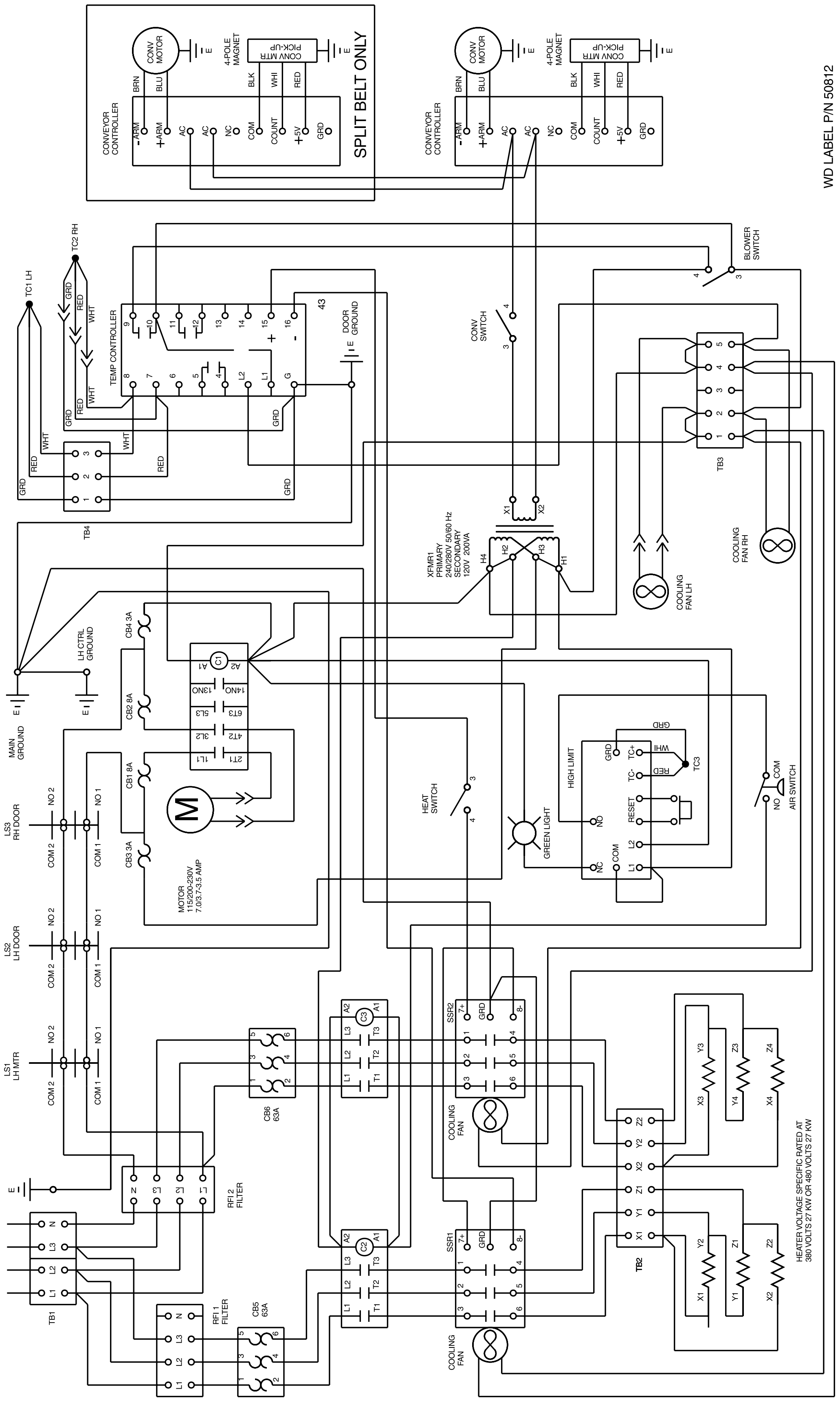
SECTION 7
ELECTRICAL SCHEMATICS



Wiring Diagram, E208-240 50/60, 3PH 4W BE3240



Wiring Diagram, E380-480 50/60, 3PH 5W BE3240



Wiring Diagram, E380V 50/60, 3PH 5W BE3240

NOTES

WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

NOTICE

During the warranty period, ALL parts replacement and servicing should be performed by your Blodgett Authorized Service Agent. Service that is performed by parties other than your Blodgett Authorized Service Agent may void your warranty.

NOTICE

Using any parts other than genuine Blodgett factory manufactured parts relieves the manufacturer of all warranty and liability.

NOTICE

Blodgett reserves the right to change specifications at any time.

CFESA

Commercial Food Equipment Service Association

Blodgett is proud to support the Commercial Food Equipment Service Association (CFESA). We recognize and applaud CFESA's ongoing efforts to improve the quality of technical service in the industry.

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